The Veterinary Record.

FOUNDED BY WILLIAM HUNTING, F.R.C.V.S., 1888.

No. 25. JUNE 21, 1930. VOL. 10.

Some Further Observations on Pathological Changes Found in Horses Affected with "Shivering," and their Significance.*

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In a previous paper, I discussed the problem of shivering as met with in three old horses and expressed the opinion that an investigation of the condition in young horses might throw more light on its cause.

In the old horses which I examined, gross changes of an osteo-arthritic nature were the outstanding features, especially in the vertebral column, and I suspected that the signs of shivering might be due to pressure effects on the roots of the nerves going to form the lumbo-sacral plexus. Since then, I have been able to examine, *post-mortem*, three definite shiverers, aged 2, 4½ and 5 years respectively, and again osteo-arthritis has been a prominent feature, though there were no marked exostoses on the vertebræ which one could incriminate as possibly causing pressure on lumbar or sacral nerve roots.

In all I found synovitis of the costo-vertebral articulations with varying-sized erosions of the heads of ribs from the effects of synovial overgrowth in these joints.

The hip, stifle, shoulder, elbow and tibio-tarsal joints showed some degree of early arthritis, though the joints from the fetlocks downwards showed no appreciable change.

The erosion of joint surfaces occurs more especially in areas which anatomists have considered as normal excavations on joint surfaces, but in some joints, particularly the elbow joints, in addition to synovial congestion and overgrowth of villi, grooving of the articular cartilage was visible. In other joints, epi-articular ecchondroses, or merely a yellowish degenerate change of articular cartilage, may be observed.

The point I wish to stress is that I have yet to examine a shiverer, young or old, in which there is no osteo-arthritis.

The difference between old and young horses affected with shivering is, that in old horses there is marked evidence of nature's effort to repair joint damage by bony and cartilaginous hyperplasia seen so well as a lipping of the articular surfaces of many joints.

An extraordinary thing, to my mind, is the absence of lameness in all the shiverers I have seen, though gross pathological changes are to be found in many joints, and this holds for many horses other than shiverers.

Another feature closely allied to osteo-arthritis, which has been met with in the three young shiverers already mentioned, is the presence of well-marked sidebones, the 4½-year-old showing complete ossification of all cartilages. (Specimens exhibited.)

I think I can assert that a horse which is a shiverer will always show some evidence of osteo-arthritis, often clinically, but certainly on *post-mortem* examination.

Periosteal Separation.—In the case of the 5-year-old, while examining the right hip joint, I found there was a partial disintegration of the accessory ligament and, following its course in the groove on the ventral surface of the pubis, I was surprised to find that the periosteum over the ventral surface of the pubis was completely detached from the bone. There was no evidence of any hæmorrhage between the bone and the periosteum.

When I came to examine the sciatic nerves just behind the hip joints I found marked hæmorrhage and œdema around the nerves which were connected with similar fractures of both sciatic tubers. On boiling out the hip bones (specimens exhibited) a fine deposit of new bone can be seen over both dorsal and ventral surfaces of the pubis and ischia. You will see from the specimen that the fractured portions are only small similar detachments, as if the fractures were due to a pathological condition of the bones associated with excessive muscular action.

Hæmorrhage.—In such diverse situations as the loose connective tissue between the external and internal oblique abdominal muscles, and the fat-loaded connective tissues in the neighbourhood of the elbow and stifle joints, groups of petechial hæmorrhages have been noticed.

Diffuse hæmorrhagic areas are common in the retro-peritoneal fat, but these are always in the vicinity of encysted larval sclerostomes. A serous semi-coagulated exudate has frequently been seen in the sublumbar muscles near the points of origin of the muscle fibres from the bodies and transverse processes of the lumbar vertebræ. It should be remembered that it is in the sublumbar muscles that the marked hæmorrhagic infiltration is most frequently found in hæmoglobinuria in the horse and that this disease may merely be a very acute form of the disease under consideration.

Lymph Glands.—All the lymph glands are enlarged and have a slightly congested, pink appearance.

Stomach.—In shiverers and other osteo-arthritics the stomach frequently shows ulceration of the mucous membrane, producing in the pyloric portion a mottled appearance, apparently normal areas of mucous membrane being interspersed with irregular ulcerated areas. Ulceration is also present on the œsophageal portion of the mucous membrane, usually in the neighbourhood of the margo plicatus, sometimes as definite rounded ulcers about the size of a sixpence, but in other cases quite a large patch of mucous membrane may be absent.

Large Intestine.—Every shiverer I have examined, young or old, has had a fairly heavy infestation of sclerostomes and, in keeping with this, aneurysms of the mesenteric arteries or their branches, and in one case there was a series of small abscesses in the bowel wall each

* Paper presented to the West of Scotland Division, N.V.M.A., at Glasgow, on May 21st, 1930.

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about the size of a hazelnut, probably due to infection gaining access at the time of entry of a larval form. An interesting fact noticed in one horse regarding these parasites was the accumulation of a large number in the loose connective tissue between the roof of the abdomen and the base of the cæcum, with slight œdema and appearance of hæmorrhage from the resulting irritation. Encysted larval forms are commonly seen in the parietal retro-peritoneal fat with an aera of congestion around.

Other Organs.—Nothing gross has presented itself in the liver, spleen, kidneys, pancreas, bladder, adrenal, thyroid, hypophysis, salivary glands or lungs. The heart also has revealed no naked-eye lesion even in the 5-year-old shiverer which had a very irregular heart; this is in keeping with the contention I have often expressed that organic disease of the heart of the horse is rare and that in the great majority of horses heart disease is functional.

Larynx.—This has only been examined in the 2 and 5-year-old shiverers and in both cases there was atrophy of the intrinsic muscles on the left side supplied by the left recurrent laryngeal nerve; incidentally, both these horses were bad grunters, but no test was made to determine whether they were roarers during life. This atrophic change will appear significant when I have dealt with the changes in peripheral nerves. (Specimens exhibited.)

Nervous System.—As I was not satisfied that pressure upon nerve roots could account for clinical signs of shivering, it became obvious that a more careful examination of the nervous system was necessary. So far, I have found no gross change in the brain or spinal cord removed from the three young shiverers, but they have been retained for future investigation. In my previous series of cases I had already noticed a marked congestion, one might almost call it a definite hæmorrhage, involving the roots of some of the lumbar nerves. I have not seen any such change in the three young horses, but examination of the sciatic nerve has revealed a varying extent of slightly congested œdematous nerve trunk, in marked contrast to the pale portions immediately above and below the affected area. The lesion is a bilateral one. This area of the nerve varied from three to five inches in length and in all cases was situated just behind the level of the hip joint. In the 2 and 4½-year-old horses, in addition to this diffuse pink appearance, there were small petechial hæmorrhages scattered throughout the œdematous area. A similar bilateral change has also been seen in the median and radial nerves on the inside of the arm in the 4½-year-old, which during life showed inability to flex the fore limbs when backed, tending rather to slide the feet back along the ground. The 5-year-old had the gross hæmorrhage associated with the apparent fracture of the sciatic tubers which I have already described, extending to and involving the nerve trunks.

Microscopic Examination of Sciatic Nerves.—In the swollen œdematous area the nerve bundles, instead of consisting of closely packed nerve fibres, show partial or complete isolation of the individual fibres by clear spaces with, in recently affected bundles, an overgrowth of young connective tissue. In many of the bundles large numbers of the fibres have completely disappeared; these I take to be cases of longer standing and in their place is a definite felted mass of fully-formed connective tissue fibres. I have never seen a bundle in which all the nerve fibres have disappeared. The nerve above and below a congested area may show very little interstitial change beyond a slight fragmentation of some of the bundles. For comparison with the affected sciatic nerve of the first horse I examined, I obtained what I thought would be a normal length of a sciatic nerve from a horse showing no signs of shivering, and to my surprise it showed in a number of bundles well-marked, old-standing fibrosis. Since then I have taken in all a similar portion of sciatic nerve from 13 horses with no signs of shivering and of these, six specimens have shown varying degrees of fibrosis (sections exhibited). The horse, therefore, appears to be very liable to an interstitial neuritis. My examination of peripheral nerves has so far been confined to the sciatic nerve, but from what I have described in connection with it and the gross changes seen in the median and radial nerves, it is very probable that other nerves may show similar changes. May not the atrophy of the laryngeal muscles in the two horses in which I am certain there is an interstitial neuritis of the sciatic be due to a similar neuritis of the left recurrent laryngeal, and may not the progressive nature of roaring be due to a gradual encroaching fibrosis compressing its fibres?

Microscopic Changes in other Tissues of the Body.—Examination of these is not sufficiently advanced to make any report in the meantime.

Provisional Conclusions Regarding Shivering.—Even at this stage of a very incomplete investigation, from the various pathological facts recorded, it appears to me that shivering is merely one of the many local manifestations of a general disease from which horses in general suffer. I leave it to you to picture to yourselves the numerous local manifestations likely to be due to a common etiological factor or factors which at present are diagnosed as definite clinical entities.

Much remains to be done, especially in the histo-pathology of the disease, in order to get back to the beginnings of the process, and if there are any in breeding districts who are able to get me young animals likely to be of interest, I will be greatly indebted to them.

Etiology.

All I have done so far is to place before you pathological evidence, but now I wish to direct your attention to a much more difficult problem—the cause of all these changes which can make a horse a veritable pathological museum. From the multiplicity of lesions met with, it seems obvious that there must be some factor of a toxæmic nature, using this term in the widest possible sense, which, if it can be tracked down and eliminated, might be the means not only of preventing shivering, but a whole host of other local manifestations to cure which generations of veterinary surgeons have devoted their energies in equine practice. I will limit myself to considering only a few of the possible causes, stressing more particularly the factor of diet. Heredity and concussion have long been considered important factors, causing, at any rate, the osteo-arthritic conditions in the limbs, so I will briefly say a word about them first.

Heredity.—I am prepared to believe that the lack of a disease-resisting factor may be of considerable importance in all the various conditions scheduled under the Horse Breeding Act, 1919, which, however, in my opinion, are mostly local manifestations of a general disease. The

same might still be said about tuberculosis, yet how many would now say that it is hereditary? It would be very unwise to ignore this hereditary disease-resisting factor, whatever it may be, until such time as it is possible to be certain about the factor or factors which initiate and maintain this insidious group of diseases and the likelihood of eliminating it or them.

Concussion.—I think this has been overrated as an exciting cause, even of the phalangeal affections, and this because I am certain, from numerous *post-mortem* examinations, that if a horse shows definite clinical signs of osteo-arthritis in the limbs, one is certain to find generalised inflammatory changes in other parts of the body, not only in the skeleton, but in other connective tissues and microscopically in various organs.

Diet.—I have already drawn attention, in the discussion on the paper already referred to, to the fact that the horse of all domesticated animals lives on the most restricted of diets, hay and oats, and I will briefly sketch the effect of deficient diets on experimental animals, as I think the results already obtained suggest possible lines of attack upon the etiology of the common diseases under consideration. Mellanby, M., has shown that food may contain protective and harmful elements and I would like to take the opportunity of paying a humble tribute to her for such a wonderful record of work recently published by the Medical Research Council,[2] which will benefit animals as much as man when its conclusions are fully realised and applied.

The protective substances are the so-called vitamins, for many years now a household word in dietary, but the term for the harmful substances, toxamins, has only recently been suggested by Mellanby. The foods in which these harmful substances are outstanding are the cereals and the most potent of these is oatmeal. So far, the presence of two different toxamins has been suggested:

1.—An Anti-calcifying Toxamin Antagonised by Vitamin D.

Working with dogs, it has been shown that cereals interfere with the deposition of calcifying salts in bones and teeth, and of all the cereals oatmeal is the worst, and that the embryo of grain has this harmful effect more developed than the endosperm. It is well-known that grain products are rich in calcium and phosphorus, yet it was found that, in spite of an abundant supply of these salts, if the diet was deficient in Vitamin D there was a smaller retention of these elements in the growing bones. This points to the importance of not being misled by chemical analyses indicating high mineral content in foodstuffs. So long as there is an efficient supply of Vitamin D, the anti-calcifying effect of cereal will be countered. Does the horse obtain an efficient supply of Vitamin D? The natural sources of this are by way of the diet or by the activation by sunlight of ergosterol in the skin. In the majority of horses the Vitamin D in the diet to counter the decalcifying effects of cereals must come from hay, but whether this is a good source or not does not appear to have been worked out. It is rather significant that cabbage rich in other vitamins is deficient in Vitamin D. The amount of Vitamin D derived from the skin, especially in the winter in this country, will not be great, and the conditions of stabling add still further to the deprivation; but, on the other hand, horses in Egypt and India suffer as much from osteo-arthritis as in this country, where there is no lack of sunlight. Gross rickets, such as we get in the dog and children, is unknown in the horse. It is, therefore, very doubtful whether Vitamin D deficiency is of much importance in the horse.

2.—A Toxamin Causing Degenerative Lesions in the Spinal Cord Antagonised by Vitamin A.

Mellanby points out how cereals fed experimentally to dogs may produce severe inco-ordination of movement often associated with and followed by weakness of the hind legs, and that this appears to be due to a lack of Vitamin A. Again, oatmeal has been shown to contain this toxic substance acting on the nervous system. Timothy hay is said to contain Vitamin A in considerable amount,[3] and I expect that other kinds of hay are equally efficient, but in a recent article[4] by Professor Mellanby, Vitamin A is said to be a very unstable substance and apt to disappear rapidly, especially in high concentrations, so that the content in hay must be considered doubtful. Possibly some of the nervous signs seen in shivering may be associated with the Vitamin A deficiency allowing a toxamin of oats to exert its harmful influence.

Is the Horse a Victim of Scurvy?

The basic diet of the horse is essentially a dry one which is deficient in Vitamin C, the vitamin present in roots, green vegetables, grass and various fruits, the absence of which will quickly produce scurvy in experimental animals. The experiments of Meyer and McCormick[5] on guinea-pigs are peculiarly interesting, for in them a natural basic diet of alfalfa hay, rolled barley and water in abundance, produces changes in cartilages, bones, teeth, muscles, many glandular organs, blood vessels, and also the central peripheral and sympathetic nervous systems. As far as I have gone in the examination of similar tissues in horses showing signs of shivering, the changes closely resemble these in many respects.

Sclerostomiasis.—The only obvious common factor seen in horses *post-mortemed* has been sclerostome infection. In the light of the present want of knowledge of the life history of these parasites and the extraordinary general benefit to horses of treatment with vermicides, we cannot afford to neglect consideration of the rôle played by such parasites.

References.

(1) Mitchell. *Veterinary Record*, February 1st, 1930, page 89.

(2) Mellanby, M. Med. Research Council, Special Report Series, No. 140. 1929.

(3) Med. Research Council, Special Report Series, No. 38. 1927.

(4) Mellanby, E. *British Med. Journ.*, April 12th, 1930, p. 677.

(5) Meyer and McCormick. Studies on Scurvy, Stanford University Pubs., California. 1928.

Personal.

Will.—Mr. John Howatt, 2 Great James Street, Londonderry, veterinary surgeon, who died on December 30th, left personal estate in Great Britain and Northern Ireland valued at £20,918. He left:—

£1,000 Londonderry Corporation Three per cent. stock redeemable at par in 1957 in equal shares to the Young Men's Christian Association, East Wall, Londonderry, the Londonderry Presbyterian City Mission, the First Londonderry Presbyterian Church, and the Presbyterian Working Men's Institute, Diamond, Londonderry, in each case to be known as the "John Howatt Bequest."

The residue of the property in trust for his wife during widowhood, and then £650 Londonderry Harbour Stock to Londonderry County and County Borough Infirmary.

A: Notes and Observations on Modern Surgery.
B: A Clinical Typing of Canine Hysteria.

By W. J. Cooper, B.Sc. (Lond.), M.R.C.V.S., Reigate.

NOTES AND OBSERVATIONS ON MODERN SURGERY.

The publication of the Abstract, "Modern Operative Obstetric Measures with Large Animals" (J. T. E., the *Veterinary Record*, May 10th, 1930, p. 406, No. 19, Vol. X), has prompted the following remarks on the performance in practice of newly-born "operative treatment," which I trust the authors named will accept with my best thanks, and forbear with me for any criticism I offer in their application.

I.—Stinson's Operation (Crucial Incision of Teat Sphincter).

The operation evolved by this author was considered immediately necessary in the case of a pedigree Shorthorn dairy cow in full milk after down-calving. The cow, from history and examination, had received some injury which caused an eversion of the epithelial lining of the teat acini some ¾-in. in length, with the emission of a fine spray of milk only, after hard milking. The quarter was forced with milk owing to the stoppage described. Nevertheless, the duct orifice was patent—that is, at the termination of the everted epithelium.

After due examination, and in view of the cow holding practically all the milk of the quarter, I decided that Stinson's operation was immediately necessary to save the quarter.

After adequate anæsthesia I operated by removing all the eversion and then proceeding as advised by Oscar Stinson in his writings. The flow was good at the finish of the operation, with little hæmorrhage, and leaving bougies for insertion and instructions for suitable after-treatment, no bad sequelæ were reported and the teat returned to normal.

This case clearly indicated the efficiency of the crucial incision of the teat sphincter, as the removal of the eversion neither gave a pronounced flow nor removed the spray. This was done with an ordinary thin blade for immediate relief, but I have since provided myself with Stinson's outfit of teat directors.

This operation appears of great importance, as the saving of a quarter with its produce is a matter of some consequence.

II.—Hudson's Operation.

Hudson has indicated an operation for so-called "pea in the teat," or other obstruction of the teat-duct, and has evolved a set of instruments for such surgical treatment.

I operated, with the set of instruments advised, on a Jersey cow for an obstruction in the upper anterior third of the teat duct of the right forequarter—the milk flow was completely prevented, causing some inflammation of the quarter.

From my experience the fixation of the tumoid growth with the probe is not easy, especially if the growth has its origin within the parenchyma of the gland and thus protrudes only within the duct channel. The screw instrument of my set, also, was of too wide a calibre for a Jersey cow, as one would have had to have been surgically rough to have removed the growth. However, I cleared the duct with the probe and got away a portion of the growth in the duct with favourable results as to clearance.

My impression was that the growth must be favourably placed in position, *i.e.*, wholly within the duct channel, for the complete success of Hudson's operation, and that for the total removal of tumours involving the parenchyma of the teat the use of local anæsthesia with excision would yield the best results. I think the author has expressed this opinion himself in some of his papers on the subject.

III.—Epidural Anæsthesia and the Thygesen (Danish) Embryotome.

The writer has had occasion to employ Geoffrey Brook's method of epidural anæsthesia in the cow for immediate relief in cases of (*a*) hydrops amnii in a Friesian; (*b*) maternal dystokia in a pedigree Shorthorn from intro-uterine tumour (size of a Rugby football, and similar shape) internal dorsal surface. Mid-body of the uterus, diffuse attachment.

(*a*) This case was advanced in condition and immediate treatment was indicated. I obtained perfect anæsthesia with little straining, in the region given by Geoffrey Brook in his monograph and survey of original previous work on spinal anæsthesia in the cow (*Veterinary Record*, No. 2, Vol. 10, January 11th, 1930) by using a small-calibre trocar for initial penetration, and then injecting 20 c.c. chlorocaine with a 50 c.c. Record syringe—the only suitable equipment I had with me. The cow was calved successfully and relieved of the large accumulation of water.

(*b*) The case under review presented some difficulty. At each labour contraction the tumour was thrust through the os uteri with considerable force. The calf was doubled under the tumour and held down by the pelvic brim. The obvious course was to ablate the tumour first. This was proposed, attempted, and found to be perfectly impracticable.

Geoffrey Brook's method of epidural anæsthesia was employed as given in III (*a*), with apologies to the author for such opportune variation of classical technique. However, I got profound anæsthesia with a spectacular erection of the tail in five seconds, followed by an equally spectacular collapse of the tail. Uterine contraction ceased, but not wholly. I could not ablate the tumour after fair attempts with due consideration for the well-being of the cow, so I calved the cow with adequate assistance. The patient was then no fit subject for a major operation, as a thorough exploration showed the tumour to have a firm diffuse attachment to the uterine wall, *i.e.*, no well-defined pedicle. I thus indicated suitable, stimulative and cleansing treatment, and left her for the day, feeling that if the involution of the uterus took place normally, the cow would do, deducing from the size of the growth and the condition of the cow that the tumour was benign. She did well for two days and then started to strain badly. I obtained permission to operate on her for the removal of the growth to save the cow.

After again employing spinal anæsthesia as described, and finding knives or their use dangerous, I employed the Danish embryotome. This instrument completely failed to cut through the tumour base, but one must say that some contraction of the uterus had taken place and the mobility of the instrument was limited.

It would appear that, although the excellence of this

pattern of embryotome is undoubted, its successful use is considerably curtailed, as in the case described, under special conditions—contraction of uterus and the size of the tumour together with its attachment.

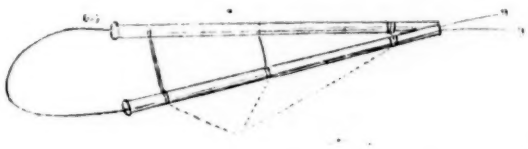
Therefore, the opinion of Dr. Benesch (Abstract, J. T. E., *Veterinary Record*, October 5th, 1930, p. 406) on the limitations of an embryotome with immovable parallel tubes is apparently justified. May I suggest to the makers that some movable attachment of the tubes be fitted, to permit of the wire écraseur being used through the same tube effectively for specific cases, *i.e.*, those presenting solidity of attachments together with volume, giving minimum room for manipulation. This modification, I submit, would increase the usefulness of this instrument, particularly in first-time heifers and mares. This adaptation would apparently produce a Liess instrument with Neubath-Benesch possibilities (*Ibid*). Mechanical maternal dystokia, having as its source uterine tumours of a pathological non-malignant type, are not uncommon in practice and the earliest obstetrical works, and their removal, in my opinion, is indicated in both mares and cows. Indeed, a large fœtus presents the identical condition.

In conclusion, I must express my gratitude to the authors mentioned in these short notes for the effectiveness and convenience I have experienced in the use of their methods, particularly in cases requiring immediate operative treatments.

Appendix.

(i) The tumour mentioned may be verified if required.

(ii) Proposed adaptation for single tube and other use.



Jointed rachet connections of a spring type.

Single tube use.

Adjustable shield to gauge length and to protect the vulva and vaginal passages.

(c) If jointed rackets are found by the makers to be impracticable, then a kind of spring clip after the manner of bicycle pump clips would be effective, certainly for double and single use; this instrument would also be most useful for ovariotomy, cryptorchidism, etc.

A Clinical Typing of Canine Hysteria.

A recent conversation with the authorities at the Royal Veterinary College on the affection in dogs named "Canine Hysteria" has caused me to record the following observations upon this disease. I submit that this malady has undergone variations in type since its initial activity.

From my observations the disease may be classified, certainly as presented in its clinical aspect, as follows:—

(i) **Type A (Original).**—This is the classical type exemplified by a sudden attack analagous to the "fly-struck" of a beast. The dog, without any warning, emits a yelp and runs excitedly at full speed anywhere, charges for corners, the degree of yelping is fairly continuous and varies to a throat gurgling, a very pronounced palpitation of the heart, some hyper-nervous stimulation, but not excessive; passage of fæces and urine not constant; some dilation of pupil of eyes, giving vacancy (not constant); usually congestion of mucous membrane of eyes. In this type I submit that the psychological factor, fear, is not the predominating feature of the syndrome—it is not unusual to have a dog galloping furiously, typically analogous to the enraged charge of a "fly-struck" beast.

(ii) **Type B (Neurasthenic).**—This type gives, to my mind, a typical neurasthenic condition. It would be fittingly termed "The Slobbering Type." The psychological factor, of fear, appears the predominant and constant feature. The following syndrome is exhibited: Salivation and slobbering; suppressed continued whining; general hyper-nervous condition, *i.e.*, over-stimulation of motor nerves, showing quivering, general; no great desire to run wild, as in Type A; urine and fæces not constantly voided; total sensibility not lost; can understand and will respond to command. This type has been observed at dog-shows. The condition responds partially to chiding, talking, consoling, slapping—indeed, a treatment psychological in every respect, and drugs appear to play a sedative ancillary physical part.

(iii) **Type C (Mental).**—This type is by far the worst. Its notable clinical aspect shows howling, barking, snarling and biting, in a determined vicious degree. Indeed, this type exhibits a close analogy to the biting phase of a rabid dog—the noted acme phase. This type responds to all the described reflex clinical tests for rabies, *i.e.*, biting at air, a stick, or its shadow, at a glove, or indeed anything except its own person. Is this the psychological factor of fear, or the definite pathological effect of attacked nervous centres? I submit that in this phase fear is eliminated. Sensibility is lost, the owner is not recognised and control is not admitted. Hyper-motor-nervous stimulation is not in evidence; eye symptoms vary; fæces and urine are voided. There appear no constant sequelæ of epileptic fits or their analogy. This type one must summarise—assuming that the syndrome is the result of a definite pathological entity of a rabid type—as a true form of transient madness and one which does not appear to be associated with psychological causes.

Treatment.—Sedatives of every kind are useful, and in many cases are enough. Diet, rest and placing in the dark also are adjuncts of treatment. The sugars also, in my opinion, have their great uses, and in this application one does see some parallelism of treatments comparable to references in the recent literature on the treatments of

milk fever. But there the treatment is the result of a deficiency scientifically worked out, and with tangible results; its use in hysteria is but empirical. I understand that sugar is used in medicine in midwifery to combat puerperal eclampsia of women.

However, I have yet to see one case of any of the types, observed by me as described, recover by the specific injection of enormous quantities of normal saline solution. Professor Hobday notes, in his Congress paper, that this treatment is always combined with sedatives. Indeed, a colloid is a physical entity; it can be recognised under the microscope; it may be diagnosed in a small tube by a physicist by its properties. And, until colloids are definitely recognised in the brain capillaries of dogs *post-mortemed* at the height of the disorder, or their existence proved before breaking down chemically, one must assume reasonably, that the colloid theory is hypothetical; that the injection of enormous quantities of normal saline is empirical; that such beneficial results as it gives are analagous to the effect of normal saline in surgical shock; and that the true explanation of the mechanism of the efficacy of the latter will also satisfactorily explain the beneficial effect of injecting enormous quantities of normal saline in dogs suffering from canine hysteria. The nervous strain of the disorder is calmed and assuaged by the injection of normal saline and it assists to prevent total collapse or violent progress of the disorder.

The differentiation in type which I submit here may be argued as a progressive syndrome, but I must admit that the history, coupled with examination, as given to me in cases grouped in the types offered, does not support such a deduction. The differentiation recorded is initial and lasts in its clinical aspect as described. I also earnestly think that Type C should be named professionally to distinguish from rabies, in view of existing Acts and Orders.

I dwell not in the etiology of this disorder. I do, however, submit that these types described can be recognised and that their differentiation may have some bearing on the etiology of the disease—whether it be a virus, a bacillus, a toxæmia, a parasitic irritation or a psychological nervous disorder fulminating from a specific nervous reflex or impulse through any existing cause whatsoever—or whether it be none of these things.

£20,000 for Animal Diseases Laboratory.

Mr. F. D. MacMaster, owner of the famous Dalkeith Sheep Station, New South Wales, Australia, has gifted £20,000 to the Council for Scientific and Industrial Research, the Commonwealth Government of Australia, to provide for the erection of a laboratory for the investigation of problems connected with animal health. It will be known as the "F. D. MacMaster Animal Health Laboratory," and the work carried on will concentrate primarily on problems relating to sheep. Mr. MacMaster is the third generation of the MacMasters in the pastoral business. His father went to Australia with his parents at the age of fourteen, and immediately started on the land. It is interesting to observe that his grand parents belonged to Morvern, Argyllshire. The "Dalkeith" stud produced the ram David, which sold for 5,000 guineas, with the right to send fifty ewes for service after sale (worth another £1,000). This constitutes a world's record price for a sheep.—*Oban Times.*

Advice to Veterinary Surgeons in Relation to Psittacosis.

(1) Any veterinary surgeon who discovers a case of a bird which he suspects to be suffering from psittacosis should send it to the Ministry of Health Laboratory, Dudley House, Endell Street, London, W.C.2.

(2) If the diseased bird is within a short distance of the Laboratory and can be conveyed there without difficulty, it would be convenient to the Ministry of Health for the bird to be delivered at the Laboratory alive. If, however, it is not easy to arrange for the conveyance of a live bird, either owing to the distance from the Laboratory or for any other reason, the bird should be killed and the carcass sent to the Laboratory with the least possible delay.,

(3) Carcasses sent to the Laboratory should be in a suitable condition for bacteriological examination. If it is necessary to kill any bird in order to send it to the Laboratory, it might be killed by first being chloroformed and then drowned.

(4) Any veterinary surgeon who takes any action in connection with a case of psittacosis should, as a matter of courtesy, communicate with the local Medical Officer of Health.

Inspection of Dairy Cattle.

"The Gloucestershire County Council is advocating a general half-yearly inspection of all dairy cattle. The County Diseases of Animals Committee, while satisfied with the results of this policy, feels that the value of the work would be enhanced if similar action were taken in adjoining counties," says the *Birmingham Gazette,* of May 29th.

"The question has been submitted by the Worcestershire County Council to the Public Health and Housing Committee of the executive council of the County Councils Association. To-day the committee announced that they were of opinion that the routine inspection of cattle as a public health measure for the prevention of milk-borne disease constitutes a question of national policy in view of the irregular distribution of dairy herds throughout the country.

"In order that some measure of uniformity in the amount of inspection considered advisable might be arrived at and that the question of cost being spread over the consuming, as well as the producing, areas, might be considered, the committee recommended that the County Council concur with this view and that the question be referred to the County Councils Association for their consideration.

"The question has been referred to the Agricultural Committee of the County Councils Association."

The Editor acknowledges the receipt of the following:—

Report of a meeting of the Derbyshire Division, N.V.M.A., from Mr. W. J. Ironside, Hon. Secretary.

Report of a meeting of the Midland Counties Division, N.V.M.A., from Mr. H. J. Dawes, Hon. Secretary.

Communications from Messrs. H. S. Caldwell (Newcastle, Staffs), R. E. Glover (Cambridge), H. N. Kennedy (Edinburgh), W. R. R. McKinna (Huddersfield), A. W. Smith (Edinburgh), and J. Willett (London).

The Veterinary Record.
June 21st, 1930.

The "Field" Distemper Vaccine and Virus.

We learn that Messrs. Burroughs, Wellcome and Company have decided to withhold supplies of both dog distemper vaccine and virus for the time being. This announcement will doubtless be received with some astonishment and much regret by many members of the profession, but, as the distribution of these products has been confined to veterinary surgeons, this early announcement informing the profession of the decision of Messrs. Burroughs, Wellcome and Company is deemed desirable.

Although the first issues were very effective, we understand that more extended experience of large scale production and distribution of the prophylactic has revealed certain difficulties which have caused serious disappointment to some members of the profession, and until these difficulties can be overcome it has been considered advisable to stop the issue of the product.

It will be readily understood that, with a highly unstable product such as dog distemper virus, it is exceedingly difficult to be certain that supplies of guaranteed quality will be available at any time. It is now certain that the virus is more unstable than it was originally thought to be and there is reason to believe that on some occasions the virus has lost potency in transit to the veterinary practitioner, with the result that the full inoculation course has been incomplete and some hounds and dogs have been imperfectly immunised. These instances, believed to be a small proportion of the whole, have caused much trouble and dissatisfaction to practitioners and dog owners and the scientific staff engaged at the Wellcome Physiological Research Laboratories are busily investigating the conditions necessary to ensure that this product shall reach the veterinary surgeon in the same state of potency as when it was despatched. Additional and more stringent tests to control the protective properties of the vaccine are also, we believe, in hand.

It is not known how long veterinary surgeons will be required to wait before supplies become available again, but it is confidently hoped that two or three months hence will see the resumption of distribution.

Much depends on the results of the work contemplated by the scientific staff of the Wellcome Physiological Research Laboratories, but we believe that the difficulties will soon be overcome, and in expressing the hope that in the near future we shall be able to announce a resumption of distribution of reliable and potent agents which the veterinary surgeon may, with confidence, recommend to his clients, we are expressing the feelings of every member of the profession.

Anæsthesia.

Truly, in the light of present-day achievements, we who live in this generation can contemplate only with dismay and misgiving the tortures which must of necessity have been endured by patients undergoing surgical operations even as recently as 30 years ago.

The anæsthetic properties of chloroform were first demonstrated in 1847 by Sir James Simpson, but it is only during the last 30 or 40 years that this drug has become universally employed for general anæsthesia.

One hundred and thirty years ago the value of nitrous oxide gas as an anæsthetic was made public, but owing to the rapidity with which its effects pass off, it has only been employed for those operations which could be quickly performed, such as tooth extraction, etc. In the intervening years many substances have been discovered, and elaborated upon, which have proved to be safe and efficacious in the production of local or general anæsthesia.

For horses, cattle and dogs, chloroform has maintained its supremacy as a general anæsthetic, although in cattle practice spinal anæsthesia has come into some prominence during the past year or more. Dogs bear chloroform very well, and indeed, often require a comparatively large dose to render them surgically anæsthetised. But for cats this drug has been universally feared, death so easily and rapidly supervening unless the administration be performed with great care by an expert. Ether for the small animals is productive of rather more excitement and a good deal of salivation when compared with chloroform, whilst for large animals its cost would be excessive.

As most practitioners are aware, there are exceedingly few drugs which will produce profound anæsthesia in cats, and to those who practice among felines, the employment of Rectal-Avertin, as outlined and demonstrated by Professor Wright,* will be heartily welcomed. By its use one avoids the necessity for fastening the patient to an operating table, and in the case of nervous animals, such as cats and some dogs, it relieves them of the fright which is inseparable from the application of a chloroform muzzle. What occurred to us as being a most valuable feature was the ease with which one could work upon the mouth, throat, or nose, owing to the absence of a muzzle.

Avertin is probably not 100 per cent. safe, and as with all other anæsthetics, care and knowledge are required in its administration. It is apparently easy to produce euthanasia through the medium of overdosage or of insufficient dilution, and one can imagine no death which would be so devoid of fear, discomfort or pain.

Probably the cost of Avertin anæsthesia for horses would be prohibitive, but there is always the possibility that improved or simplified methods of manufacture may be found which will materially reduce the cost.

The " Field " Distemper Council.

The Duke of Portland presided over a meeting of the *Field* Distemper Council, summoned to consider a report of its Scientific Committee on the results obtained since the distemper preventives had been distributed on a commercial scale.

The report stated that 22,000 doses had been issued to veterinary surgeons. The percentage of successful immunisations had not been so high as during the first experimental issues, and a number of dogs treated during last summer and autumn had not been rendered permanently resistant to the disease. The Scientific Committee, with the co-operation of the staff of the Wellcome Laboratories, had concluded that the virus issued must in some instances have been inert by the time it was used. Having discovered the cause of the trouble, extra tests and safeguards had been instituted and the committee confidently hoped that the success obtained during the experimental periods would soon be repeated in the general use of the commercial product.

The hope was expressed that Masters of Foxhounds and dog owners would not be discouraged and would continue to avail themselves of the Laidlaw-Dunkin method to render dogs resistant to distemper.

The Council expressed its gratification that Dr. Laidlaw and Mr. Dunkin had been permitted by the Medical Research Council again to co-operate with the staff of the Wellcome Laboratories in the testing of the vaccine and the virus, and they trusted that this would contribute to re-establishing confidence in a valuable means of limiting the ravages of canine distemper.

* *Vide The Veterinary Record*, June 14th, 1930 (Vol. X, No. 24, pp. 513-521).

Strychnine Poisoning in Greyhounds.

The recent and widely-published case in which two very valuable racing greyhounds were poisoned through the ignorant use of a " tonic " serves to emphasise the truth of the old saying that " a little knowledge is dangerous." Most readers of the *Veterinary Record* will no doubt have read the reports of this case in the lay papers, but for the benefit of those who have not, the salient points are as follows: Two greyhounds, Munster House and Apella, which were in the hands of a trainer attached to a certain greyhound track, were due to run in an important event, and the trainer—wishing to increase their speed and improve their stamina—administered to each a large teaspoonful of a " tonic " which he had laid by for some years. He stated that he thought the tonic contained arsenic. Upon the following morning both dogs were found dead in circumstances which suggested poisoning. An immediate enquiry was held, as an outcome of which the viscera of the hounds were forwarded to Dr. Clough of the R.V.C., London, for analysis. Dr. Clough reported, in the case of Munster House, having separated 1/30th gr. of strychnine from the whole of the stomach contents. From the stomach contents of Apella he separated 1/180th gr. strychnine, and his opinion was that death had been caused by strychnine poisoning.

The explanation at first advanced by the trainer was that the dogs had picked up and consumed a dead rat; but when the analyst revealed that no small bones, fur, hair or animal intestines were to be found in the contents of the dogs' stomachs, this theory became untenable. No trainer, veterinary surgeon or other official of a large greyhound kennel would have accepted for one moment such a suggestion, since greyhounds are not addicted to picking up or eating filth.

The management of the track severely censured the trainer and ordered him to compensate the owners for their loss. They also adopted a kennel rule forbidding the administration of medicines or tonics except with the knowledge and consent of the veterinary surgeon attached to the track. They urged that the National Greyhound Racing Club should adopt a similar rule and that it be incorporated in the " Rules of Racing."

Some have suggested that the National Greyhound Racing Club have been guilty of some negligence in failing to have some such rule incorporated in the Rules of Racing, since, as is suggested by these critics, the administration of drugs to training greyhounds by trainers and others is a fairly common practice. There are others who state with equal force that the amount of unofficial medicinal treatment which takes place on racing tracks is negligible.

Whether the practice is common or whether it is rare is not of great importance. The case in question clearly proves it is possible and on occasions yields undesirable results, and there can be little doubt that the action taken by the racing track concerned was the only one to adopt under the circumstances.

The great lesson to be learnt from the case, however, is that the commonly-known tonic-poisons are far too easily obtainable by laymen, and it is a great injustice to owners and animals alike that such mishaps can occur. Certainly,

the managements of the various tracks do not condone the administration of any sort of medicines to the dogs under their charge unless such is done upon the advice of the track veterinary surgeon.

Army Veterinary School Jubilee Ceremony.

The 50th Anniversary of the founding of the Army Veterinary School, Aldershot, was marked by a ceremony held at that institution on the afternoon of Thursday, June 5th, when the Commandant, Lieut.-Colonel E. P. Argyle, D.S.O., and Miss Argyle, were "At Home" to a representative gathering of past and present officers of the Royal Army Veterinary Corps and their wives.

The proceedings commenced with an address by Lieut.-Colonel Argyle, who reviewed the work done during the fifty years of the School's existence. Lieut.-Colonel Argyle pointed out that more than 5,000 officers and other ranks of combatant units have received instruction in the management of military animals both in health and disease—a by no means small contribution to the diversified training required for war. On the research side, many important contributions had been made to scientific knowledge, whilst for 22 years the School had prepared every dose of lymph used in vaccinating the Army and the Navy. The care and efficiency with which the lymph was prepared could be estimated by the fact that not a single death or case of illness ever followed its employment.

The company then proceeded into the grounds, where Major-General W. S. Anthony, C.B., C.M.G., made a brief speech and unveiled a tablet which had been erected to mark the occasion.

The School was then opened to inspection by the guests, who were keenly interested in the various demonstrations which had been arranged. These included photographs and relics of the early days of the School, modern methods of X-raying horses, a cinematograph display of veterinary training films and exhibitions of the methods and appliances used in research work.

Tea was served in a marquee, during which interval a detachment of the Royal Artillery Mounted Band played selections.

Amongst those present were Major-General Sir Layton Blenkinsop, Colonel Commandant, Royal Army Veterinary Corps, and Lady Blenkinsop, Mrs. Anthony, Colonel and Mrs. H. S. Mosley, Colonel J. J. H. Tapley, Major L. Danels, Assistant Director-General, Army Veterinary Services, Mrs. Danels and Dr. F. C. Minett.

R.A.V.C. Annual Dinner.

The following is a list of officers who attended the above Dinner on Friday, June 13th, 1930, at the Hotel Victoria :—

Major-General W. S. Anthony, C.B., C.M.G., Director-General, Army Veterinary Services, presiding.

Major-Generals.—Sir Layton J. Blenkinsop, K.C.B., D.S.O., Colonel Commandant; Sir John Moore, K.C.M.G., C.B., F.R.C.V.S. and W. Dunlop Smith, C.B., C.M.G., D.S.O.

Brigadier A. J. Williams, D.S.O.

Colonels.—H. S. Mosley, D.S.O.; J. J. B. Tapley, D.S.O.; A. G. Todd, C.B.E., D.S.O.; G. K. Walker, C.I.E., O.B.E., and F. W. Wilson, C.B., C.M.G., F.R.C.V.S.

Lieutenant-Colonels.—E. P. Argyle, D.S.O.; A. E. Clarke, W. B. Edwards, J. J. Griffith, D.S.O., L.A.H., L.R.C.S., F.R.C.V.S.; F. D. Hunt, O.B.E.; G. B. C. Rees-Mogg, O.B.E., and F. C. Stratton.

Majors.—F. J. Andrews, G. Barnett, M.C.; V. A. Bartrum, O.B.E.; J. Bell, E. C. Bowes, J. S. Bowden, O.B.E.; C. K. Calder, L. Danels, C. Davenport, O.B.E., F.R.C.V.S.; A. C. Duncan, F.R.C.V.S.; J. Harrison, C. W. Heane, F. Hogg, H. J. Holness, D.S.O.; H. J. Hughes, M.B.E.; W. H. J. Kirk, C. J. R. Lawrence, O.B.E.; T. Lishman, G. Lloyd, D.S.O., F.R.C.V.S.; J. Mullany, M. A. Murphy, C. A. Murray, J. W. O'Kelly, F. C. O'Rorke, C.M.G., F.R.C.V.S.; A. A. Pryer, D.S.O.; W. M. Rouse, G. K. Shaw, T. L. Shea, G. F. Stevenson, T. Sealey-Green, W. H. Thomas, A. J. Thompson, G. Williamson and T. E. Campey, M.B.E.

Captains.—E. O'Kelly, H. A. Idenden and A. J. Warburton.

Lieutenants.—L. W. Coulden, R. K. Kent, A. A. Kidd and J. V. Tevlin.

Potassium Theory of Azoturia.

"Carlens, whose researches were the first to show the relations of glycæmia to milk fever of cows, has apparently solved the mystery of azoturia," says *The North American Veterinarian.* "By making tests of blood of healthy and affected horses he was able to show an excess of potassium in the blood of the affected horses. The calcium value was the same in both groups, as was also the hydrogen ion concentration (pH). Horses are most apt to come down with azoturia after having been fed oats. Oats raise the potassium ions and in view of the action of the blood plasma potassium on the voluntary muscles, the author attributes the contractures to the excess of this element.

"Physiologists have shown that when the potassium of the plasma in frogs exceeds a certain proportion, a peripheral paralysis ensues and that voluntary muscles lose their power to react to stimuli when the percentage of potassium reaches a definite limit. Moreover, Carlstrom (cited by the author) observed that the hæmoglobin eliminated in the urine of the affected horse was of muscular and not of blood origin. As potassium exists in the muscle cells in the form of a phosphate, it is thought that this salt is decomposed during exercise and that the decomposition is associated with equal amounts of lactic and phosphoric acids, and hence the liberation of potassium. Under ordinary metabolism the lactic acid is burned up, but when the muscular action is intense the combustion does not occur fast enough, and as a consequence it accumulates in the muscles and surrounding plasma, while the excess of potassium diffuses rapidly through the muscle tissue to be finally eliminated with the urine.

"Food rich in potassium and poor in calcium, such as oats, is most often the contributing factor and the actual cause of the muscular phenomena is the aberrated potassium metabolism in the muscle fibres.

"Summarising his explanation, the author states: 'Following substantial feeding in plethoric horses, the muscles are gorged with lactacidogen ($C_4H_{12}K_4H_2$). The decomposition of this substance as a consequence of exercise yields phosphoric acid, lactic acid, and potassium. The acids provoke degeneration of the muscle fibres and the liberation of their colouring material to the blood. The large amount of potassium in the plasma around the fibres causes paralysis of the peripheral motor nerves and tumefaction of the muscles.'

"While the hypothesis can be objected to as not being absolute, says the author, it at least intimately concerns the nature of azoturia."

Clinical and Case Reports.

Distemper Immunisation.

By J. C. Coleman, M.R.C.V.S., Swindon.

Reports upon the results of the use of the Mill Hill vaccine and virus appear to be at variance. It would seem, therefore, that a useful purpose would be served if all veterinary surgeons who have made use of this method would publish their observations.

I was favoured in 1928 by Dr. Laidlaw and Major Dunkin in being supplied with the material during the experimental stage. The dose of vaccine was, as now, 5 c.c., but that of the virus was 0·25 c.c. and was given intradermally, whereas to-day it is 1 c.c. and administration is by the subcutaneous route.

Of ten couple of hound puppies inoculated at this time no malaise, loss of appetite or other symptoms of illness were observed at any time after inoculation, and temperatures were taken night and morning for the two weeks. In three hound puppies, however, I observed during the intradermal injection of the virus that toward the end of the injection a small quantity escaped into the subcutaneous tissues and 2-3 days afterwards each puppy showed slight malaise and was off his food for 12 hours with temperature 103·6° to 104·2°. The following day they were all quite normal.

At the end of three months many of these puppies were returned to the kennels where distemper was rife among the unvaccinated hounds, many of the latter dying each week. The vaccinated puppies were purposely placed with those affected with the disease and they all came through the ordeal without at any time evincing a symptom of distemper.

The products (vaccine and virus) were commercialised early in 1929 and from April 4th, 1929, to date, I have vaccinated 52 couple of hound puppies, also Labrador retrievers, Bloodhounds, Greyhounds, Airedale terriers, Irish Water Spaniels, Salukis, Cairns, Wire and Smooth Fox terriers, Red Setters, Sealyhams, Bull-dogs, Cocker and Field Spaniels and Chows, and to date have not had a case of distemper in any of them reported to me.

Six hound puppies developed hysteria at periods varying from a fortnight to three months after virus, and an Irish Water Spaniel and an Airedale showed hysteria two days after the injection of the vaccine. In spite of this, I gave the virus on the day it was due, to see what would happen. The hysteria continued for nine weeks in the Airedale puppy and at 12 weeks there was abscess formation in the head and throat. This was evacuated and an uneventful recovery followed.

A hound puppy developed a very large parotid abscess, which extended right over the head, five days after receiving the vaccine. This was evacuated and the virus injected and an uneventful recovery followed.

Six hound puppies have died from " Yellows " at periods of four to nine months after the vaccination. I unfortunately only saw two alive and I diagnosed leptospiral jaundice in both of them. The carcass of the last hound to die was sent to Major Dunkin, who confirmed my diagnosis.

From the above, I think we can claim to have a 100 per cent. immunising agent against distemper, thanks to the research labours of Dr. Laidlaw and Major Dunkin.

I am, however, very anxious to learn whether any of the complications referred to above may justly be attributed to the vaccination. If the answer to this question be in the affirmative I would ask (1) is it the method now advocated for injecting the virus which is at fault? or (2) is it the material itself?

Personally, I am of the opinion that the vaccination has no connection with the complications which have occurred, but I may add that I am strongly in favour of the intradermal method of introducing the virus, as by this method absorption is not so rapid, and in support of this theory I again refer to the three cases in 1928 which showed malaise, etc., when I had observed that a portion of the virus had escaped into the subcutaneous tissues at the time of injection.

It must, however, be realised what difficulties accompanied the production upon a *commercial basis* of vaccine and virus which had formerly been done upon a smaller scale with the most strict scientific laboratory precautions. It may, therefore, take time to eliminate any slight discrepancies which may easily occur.

Some of the results reported in the lay press are most alarming and I hope that the veterinary surgeons concerned will see their way to give us their opinions and observations in these cases, as I understand that the material is only supplied to veterinary surgeons.

If any have not strictly observed the instructions laid down by Laidlaw and Dunkin, I trust that they will be just and admit it; otherwise, I fear that the greatest discovery of the century in veterinary science is doomed to make very slow progress.

Physiological Saline Solution in Gastritis.

By W. P. Blount, M.R.C.V.S., Centenary Post-Graduate Fellow, Royal (Dick) Veterinary College, Edinburgh.

While acting as assistant to Mr. H. W. Steele-Bodger, of Tamworth, I was introduced to the method of treating certain types of canine gastritis by the use of sodium chloride. Those cases which had as one of their marked feaures the drinking of large quantities of water (a state in which the water would be vomited within a very short time) were found to receive great benefit by the addition of a little common table salt to the drinking fluid. This simple household remedy I have since tried on many occasions with efficacious results. It was usual, however, to prescribe a saline tablet containing the chlorides of sodium, potassium and calcium: a solution of which was added either to the fluid diet in substitution for the water content, or as the sole drink of the animal. On occasions it was used orally as " medicine."

It occurred to me that if the formula for the tablets was modified to make an isotonic solution, even better results might be expected. The theoretical basis for the use of such a solution in the treatment of gastritis or other irritations of the alimentary canal was as follows:—

Where inflammatory changes have occurred in the intestinal mucosa, repair will take place largely as the result of the action of the lymph bathing those cells; in addition

to which, the less mechanical or physico-chemical irritation the cells receive on their *external* aspect, *i.e.*, that surface normally exposed to air or food, and therefore outside the body, the sooner will repair take place. Every patient with acute gastritis knows the pain which may be caused by the eating of solid foods, or by the drinking of fluids acid in nature. It seemed reasonable, therefore, to suppose that if an artificial plasma were allowed to bathe the inflamed surface, with plasma on both sides of the tissue, the process of repair would be accelerated. Physiologists may argue that a hypertonic saline solution would be even better because then, by osmosis, some of the fluid contents of the mucosa cells would be removed, thus not only washing the cells but also removing any deleterious matter from within them. This was not my intention, however, for it seemed to me that with diluted plasma (lymph) on the internal (circulatory) aspect of the cells, and with isotonic artificial plasma externally, the normal repair process would be most favoured.

Dr. Henry Dryerre, Professor of Physiology, Royal (Dick) Veterinary College, Edinburgh, kindly supplied me with the following formula, which is isotonic and similar in composition to that of the blood plasma :—

Sodium chloride, 40 grs.
Potassium chloride, 1·9 grs.
Calcium chloride, 1 gr.
Sodium bicarbonate, 7/10 gr.
Neutral sodium phosphate, 1 gr.
Glucose, 5 grs.
Water, 10 ounces.

I now approached Dr. Stanley White, chief advisory officer to the medical and scientific departments of Messrs. Parke Davis & Co., Ltd., London, to see if his firm would contemplate making an experimental batch of tablets with the above chemical composition and so replace Tablet 561 which had hitherto been used. Messrs. Parke Davis, with their usual courtesy, did everything possible. A special mould was necessary owing to the size of the tablets, and a further technical difficulty, due to the incorporation of the glucose, was also overcome. Less than a month later the first supply arrived (May, 1928) and gave very satisfactory results.

In order to gain a wider experience with the tablets, I suggested that several of my veterinary friends should also receive experimental supplies, and the following gentlemen kindly co-operated in using them for small-animal therapy: Mr. Burgon (Edinburgh), Major F. Chambers (Wolverhampton), Mr. C. B. Davidson (Shildon), Mr. John Taylor (Edinburgh), Mr. Vernon Tyerman (Ludlow), and also the Clinical Staff, Royal (Dick) Veterinary College, Edinburgh.

From a consideration of the reports from these gentlemen, it appears quite clear that physiological saline tablets are of very definite value in the treatment of gastritis in the dog or cat, and further, that they have a very definite therapeutic value in other morbid conditions. In many cases of gastritis in the dog the animals are greedy for fluid; huge quantities of water are drunk and just as quickly vomited again. The substitution of saline solution for the drinking water gives excellent results. It is palatable, absolutely non-irritating to the mucous membrane, and exerts very marked anti-emetic powers. It *may* be vomited, but it is always retained for a far longer period than is ordinary drinking water, which means that some benefit is being obtained; and Davidson has seen it retained when bismuth has been ejected. The best results appear to accrue when it is given first in small quantities warm (one to two ounces), later putting the full half pint before the animal. In cases of supposed "poisoning" Grahame has first used the stomach tube and so washed out the viscus with the solution: the results were excellent.

Realising that for dispensing purposes an 8-oz. size tablet would be of value, Messrs. Parke Davis at a later date supplied the saline in two sizes, a large 10-oz. tablet for bulk dispensing, and a smaller 8-oz. tablet for oral administration as "medicine." Cats do not readily drink saline solution, so that it is usual to spoon feed them with it.

It would be foolish, of course, to suggest that the tablets have always been successful; they have not. Several cases of acute gastritis have died, but in the majority life appeared to be prolonged, and one has the conviction that had the treatment been adopted at the beginning of the illness in certain cases the final result might have been different.

It has to be remembered that the farther the solution passes down the alimentary canal the less isotonic it becomes, although, as it contains most of the constituents of blood plasma, it can hardly but be of benefit in alimentary irritations other than gastritis. Several cases of hæmorrhagic gastro-enteritis recovered with saline therapy, and in this connection the introduction of an alimentary antiseptic would appear rational.

The solution has been used successfully in canine hysteria (see note by Chambers, *Veterinary Record*, No. 17, Vol. X, p. 370); in wound and surgical shock; in periodic gastritis of man, and I invariably use it as my diluting fluid for the counting of red corpuscles. Its isotonicity may be gauged by the fact that, with the several species of domestic animals, evidence of hæmolysis does not occur for several *days*.

Chambers states that he has, on occasion, found subcutaneous injection of the solution to be followed by abscess formation, and he attributes this to the glucose content. It is difficult to understand why glucose (which is so commonly used in subcutaneous therapy) should cause sterile abscesses, and knowing the surgeon, it is equally difficult to believe that the technique was at fault and that the abscesses were not sterile; but the fact remains that in the subcutaneous treatment of canine hysteria with saline solution Chambers finds that he gets better results (*i.e.*, no abscess formation) when the glucose is omitted. This is not to suggest that where the solution is given *orally* for inflammatory states of the alimentary canal, glucose-free solution would be an improvement. On the contrary, I believe that the nearer the constituents approximate the composition of the blood plasma the better. In view of this, the inclusion of proteins might be suggested, but it is not known that the albumins, etc., of the blood serum play any important part in the healing process, although as buffer salts, and perhaps as a small reserve of protein food principles, they are necessary constituents of the blood. Voge (*Journal of Comparative Pathology and Therapeutics*, 1929, Vol. XLII, Part 3, p. 207; and also *Biochemical Journal*, 1929, Vol. XXIII, No. 5, p. 1146) found that it was the euglobin fraction of the blood proteins which was associated with the formation of antibodies in bovine contagious abortion, so that

we may eventually find that the addition of euglobulins to the saline will provide the body with material for use in its production of anti-bacterial substances.

It is better to make fresh suppiles of the solution as required; because, with its peculiar chemical composition it appears to be an excellent medium for the growth of fungi, micro-organisms, etc. So that unless the solution (if old standing), as well as the instruments, be boiled there may be the danger of abscess formation.

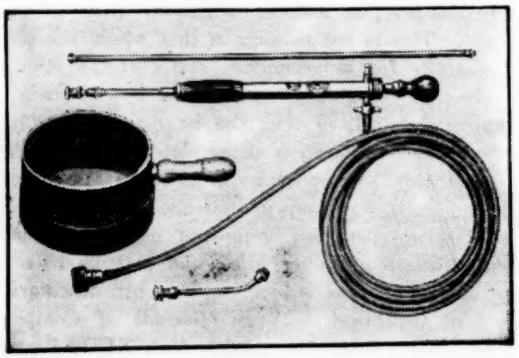
In conclusion, may I state that it is my considered opinion that a physiological saline solution, similar to the one outlined above, is invaluable in the treatment of gastritis, of small animals, supplementing and even replacing the use of bismuth.

A Useful Pump for Employment with the Stomach Tube.

By F. Chambers, F.R.C.V.S., Wolverhampton.

When I first commenced to use the stomach tube as a means of administering drugs to the horse, I soon found that the pump recommended and sold for use with the tube had several drawbacks. One of the objections was that the pump had to be operated from within the bucket containing the liquid that one wished to administer. The amount of free stomach tube being very restricted, one had to move the bucket about if the horse was restive, as they usually are when suffering from colic, and there was always the likelihood of the tube being wholly or partially withdrawn during a sudden movement of the animal.

Five years ago I purchased from the Eclipse Spraying Company a pump that, for use with the stomach tube, I consider ideal. It is strongly made and has never given a moment's trouble since I have had it. The suction end consists of a ball valve in a strong protected retainer. This is connected with the upper end of the pump by a long length of tubing. The pump is connected with the stomach tube by inserting the metal end in the tube. This it fits perfectly after removing the sprayer that is attached. One holds the pump in the left hand, using the right to operate the piston, and one can follow the movements of the horse without the least fear of moving or withdrawing the stomach tube. By fitting the attachments supplied with the pump one can use it for lime washing or spraying kennels, etc., with disinfectant, the purpose for which the pump is put on the market.



The Eclipse Spraying Company have lent the block to illustrate the pump. It is hardly necessary for me to state that I have no interest pecuniarily or otherwise in the company that makes these pumps, but am recommending this useful instrument solely to put fellow practitioners "on to a good thing." The price is quite reasonable.

Cystic Calculi in a Young Bitch.*

By J. Adamson, Junr., Royal Veterinary College, London.

Subject.—Pedigree Pekinese bitch, aged two years.

History.—The bitch had considerable difficulty in passing urine for about three months previous to our examination. She would assume the position for micturition, and after considerable effort was able to pass a few drops of clear urine. This occurred at extremely short intervals throughout the day and night.

Symptoms.—These were in agreement with the history.

Diagnosis and Prognosis.—Palpation revealed a hard round body in the position of the bladder and the condition was diagnosed as one of cystic calculus. Without surgical interference the prognosis was unfavourable.

Treatment and Technique of the Operation.—The bitch was put on a suitable diet for a few days. The skin of the abdomen was shaved and cleaned with spirit the day previous to the operation. The bladder was emptied before administering the anæsthetic. The anæsthetic used was three parts of chloroform to two parts of ether. Sterile cloths were used to protect the operation field, and held in place by towel clips. The skin was painted with spirit followed by tinct. of iodine 2½ per cent. An incision about two inches long was made into the skin just in front of the cranial edge of the pelvis, and subsequent incisions, each slightly shorter than the first, were made through the following structures: 1. Subcutis and fat. 2. External sheath of the straight abdominal muscle. 3. Rectus muscle. 4. Retroperitoneal fat. 5. Peritoneum. The bladder was lifted outside the abdomen and packed around with aseptic swabs, soaked in warm sterile saline solution. An incision of one inch was made into the bladder wall, passing through the serous, muscular and mucous coats, and two round stones about the diameter of a sixpenny-piece were removed. The mucous coat was sutured by means of three Czerny-Lambert sutures of No. 0 catgut with eyeless needles, and the wall was sutured in a similar manner with No. 1 iodized catgut.

The retroperitoneal fat and peritoneum were sutured with a continuous suture of No. 1 catgut. The abdominal muscles and sheath were sutured in a similar manner with No. 2 catgut. In addition to the continuous sutures, a number of interrupted were put in to strengthen the wall. The skin was sutured by means of interrupted and double interrupted sutures of silk-worm gut. The wound was painted with tinct. iodine and covered with a piece of sterile gauze held in place by means of a tight bandage. A calico support, with hole cut for the fore limbs, was placed over the thorax and abdomen to assist in protecting the wound and to inhibit movements.

The day following the operation, the bitch took a little liquid food, but was listless, and commenced vomiting. Fortunately this complication was controlled by a diet of white of egg and brandy, and the animal made an uneventful recovery.

The stones, on analysis, were found to be composed of calcium salts.

* Case presented for award under the N.V.M.A. Clinical Prize Scheme for Students, 1929.

Reviews.

[**"Broncho."** By Richard Ball, with 16 Plates from drawings by G. D. Armour. Published by Country Life, Ltd., 20, Tavistock Street, Covent Garden, W.C.2. Price 10s. 6d. net.]

This is a very delightful story "dedicated to horses of 'All ranks' who served in the Great War, all of whom suffered and few of whom survived. Amongst the survivors is the real Broncho, whose name has—in all humility—been given to the 'Hero' of this fictitious tale, since it is to him that it owes its inspiration." . . . . "The author wishes it to be distinctly understood that he has drawn upon imagination for his characters. He has no more founded any human character on a particular individual than he has attempted a true life-story of the famous Olympia winner. His knowledge of the real Broncho is not greater than that of most other visitors to the International Horse Show."

In brief, the story tells of a horse that had been badly treated and terrorised, but in the skilful and kind hands of a sympathetic young man is made amenable to good ways and wins a point-to-point race in a manner suggestive of greater things. War breaks out. The young man joins a yeomanry regiment; Broncho is requisitioned by the Remount Department, but is fortunate in being sent to his master's regiment and is detailed as his charger. The regiment then joins the Expeditionary Force in France. One night, on returning from the front line trenches, having taken up supplies to the regiment, both the young officer and Broncho are wounded from shell-fire. The officer is sent to hospital, and Broncho is evacuated by horse ambulance and by canal barge to a veterinary hospital, receiving much sympathetic attention and skilful treatment. Two years later, while on patrol duty, the officer is shot down and taken prisoner. Broncho flees in terror and is eventually found exhausted, attended to by a veterinary officer, and again finds himself in a veterinary hospital, where he becomes a fine subject for psychological study on the part of a hospital section commander. The end of the war comes. Broncho is shipped home, is sold by public auction, bought for ten guineas by a dealer who sends him to his brother, another dealer, in Ireland. Here he makes great friendship with an Irish boy groom who can do anything with him, whereas to both dealer and to prospective purchasers he shows the greatest antipathy. He takes part in a Maiden Steeplechase under the name of "King's Treasure," the Irish boy riding, but fails even to be placed. The young officer, his former master, happens to be at the Steeplechase meeting, there is instant recognition, and reunion is effected at the cost of £75. He returns to England, the Irish boy accompanying him, and becomes a public performer in jumping competitions, finishing up by winning at Olympia, beating well-known performers. An even thousand pounds is offered by an American for him. "Now, say that you'll sell him," said the American. "Never," said Roger proudly, "as long as I live."

The story is exceedingly well told, and the book beautifully illustrated; it cannot fail to be appreciated by all lovers of horses. It is a fine lesson in that sympathetic feeling between man and horse which always makes for perfect understanding, and it is, moreover, a fitting tribute, in its dedication, to our equine friends who helped to win the war.

J. M.

"Lest We Forget."

"Live Stock."—Dr. Juan E. Richelet, the Veterinary who represents the Argentine Government, has written and published in the French language a very interesting booklet on "Live Stock." It is a copy of an address he presented at a Conference held in Seville in October, 1929.]

Dr. Richelet deals in detail with "General Considerations"; "Desirable Evolution"—*e.g.*, the production of younger and lighter types of beef, *i.e.*, baby beef; the prices paid for animals; the production and exportation of meat from Argentina; the world's production of meat; the consumption of meat in various countries; the live stock of France in 1927 and 1928, and the exportation of animals. He then follows with remarks on the production in detail of live stock in U.S.A., Germany, Australia, New Zealand, Canada, South Africa, Madagascar, Brazil, Uruguay, Chili and Venezuela.

Dr. Richelet concluded his address by suggesting that an International Meat Bureau should be established, and that representatives from various countries, who should be experts, be attracted to the Bureau. This Bureau should furnish breeders, feeders, importers and exporters of live stock and meat, with all the necessary information relative to each country, *e.g.*, best types of animals to breed in order to supply the class of meat required in each country; the prices that could be obtained for meat—and the suggestion has also been made that throughout the world there should be a uniform standard and system of veterinary meat inspection in every country so that meat examined, passed and stamped in the exporting country could be accepted in the importing country.

The booklet contains very much valuable information for those associated with the importing and exporting of live stock and meat. An Appendix gives the numbers of animals killed in Argentina in 1928 and 1929.

T. D. Y.

Children's Deaths in Lübeck.

The Berlin correspondent of *The Times* reports that during Whitsuntide eight more of the infants treated at Lübeck by the Calmette prophylactic tuberculosis treatment died. Another has died, bringing the total up to 37.

At a meeting of the committee set up by the parents to look after their interests it was stated that there was reason to fear further deaths. Twenty-two more infants were dangerously ill.

The results of the official investigation, which is understood to be directed mainly towards the possibilities of accident or carelessness during the development of the cultures at Lübeck, have not yet been made known, and impatience is being shown. The chairman of the committee contended that the small experiments made at Breslau and Neukölln did not justify the Lübeck authorities in introducing the treatment on such a large scale.

The committee, on the ground that it was more important to save the children than to protect the authority of the doctors, passed a resolution demanding the removal from their office of Dr. Altstaedt, the chief medical officer of the Lübeck Health Department, and Professor Deyke, the director of the General Hospital. It is announced that Dr. Altstaedt has been granted leave at his own request, in the hope of relieving the situation and facilitating the investigations.

Abstracts.

[**Undulant Fever and Epizootic Abortion Transmission to Man.** Panisset, L. *Rév. Gén. de Méd. Vét.*, No. 459, March, 1930.]

The author reviews the history of the investigations into undulant fever and contagious bovine abortion, the discovery of the similarity or possible identity of the respective causal organisms, *B. melitensis* and *B. abortus*, the discovery that *B. abortus* was responsible for undulant fever in human beings living in districts where no goats existed. He mentions vesicular eruptions on the arms of veterinary surgeons, points out the dangers of obstetrical work and of live vaccines, recommends careful personal disinfection and pasteurisation of milk.

He states that dyes of the æridin series (*e.g.*, dimethylamino-æridine or gonærin) are being used in France for the treatment of undulant fever and are being tried in the treatment of epizootic abortion.

C. McG.

[**Swine Fever in France. Treatment by Specific Serotherapy.** Rossi, Paul. *Rév. Gén. de Méd. Vét.*, No. 457, 1930, January.]

The diagnosis of swine fever by clinical and *post-mortem* examination is often difficult on account of indefinite signs and lesions. Artificial infection of young pigs is an expensive method of diagnosis.

The best method is to inoculate anti-swine fever serum into some of the healthy pigs in contact with affected animals. If the disease is swine fever, the serum-inoculated pigs do not become affected. When diagnosis is established, the best method of dealing with an outbreak is to inoculate the healthy pigs with anti-swine-fever serum and let them come into contact with affected pigs. The use of formalised virus has not been successful and live virus is uncertain and dangerous.

The affected herd should be split up into several lots and good hygienic conditions should be established. The several lots should be carefully watched and, as the disease appears, the in-contact animals should be inoculated with serum.

C. McG.

[**The Reaction of the Horse to Whitmorin.** Verge and Pairemaure. *Rév. Gén. de Méd. Vét.*, No. 457, January, 1930.]

Melioidosis is a disease very closely allied to the bacillus of glanders, *viz.*, *B. whitmori* or *B. pseudo-mallei*. Whitmorin is the name applied to sterile extracts of cultures of *B. whitmori*. Intradermal injection of whitmorin into a healthy horse causes only a slight painless swelling, which soon disappears. Intradermic, subcutaneous or intrapalpebral injections into glandered horses cause reactions similar to those set up by the injection of mallein, but which are relatively slow, more lasting and more progressive.

Human beings suffering from melioidosis react to mallein, but in the only spontaneous case known of melioidosis in a horse, the animal was negative to mallein.

C. McG.

[**The Epidemiology and Diagnosis of Contagious Abortion of Cattle.** Leuthold, A., *Schweizer Archiv. f. Tierheilkunde*, 72 (1930), 145.]

The author has examined a large number of cases of abortion in the three Swiss cantons of Zurich, Lucerne and Thurgan. Of the abortions occurring in 29 herds after the sixteenth week of pregnancy, he finds 96 per cent. to be due to infection with Bang's bacillus. Of 787 animals examined in 42 herds from different parts of Switzerland he could find no evidence of infection with this organism in early abortions. Bang's bacillus frequently sets up a vaginal catarrh without necessarily resulting in further derangement of the genital functions. In three herds the source of infection was traced to the introduction of an infected cow, and in one case a breeding bull appears to have been the source. The number of abortions in most herds lies between 10 and 30 per cent., but it may be as high as 63 per cent. The duration of infection would appear to last from one to six or more years. In two herds examined joint complaints appeared to be connected with the disease.

In serum diagnosis, agglutination in the 1 :40 dilution is diagnostic. The correct choice of blood samples is very important with this test, and through it one may diagnose with certainty 96·5 per cent. of the affected cases.

W. R. W.

[**Preliminary Note on Vaccination against South African Horse Sickness.** Kind, G. *Ibid.* p. 159.]

At the present time preventive measures consist of simultaneous intravenous inoculation of virus and serum; about 3 per cent. or more of the animals die as the result of this, whilst frequently an animal develops no protective immunity at all. The author suggests, as the result of experiments upon four horses, with four as controls, that it is preferable to give a preliminary subcutaneous inoculation of immune serum, and to follow this four weeks later with an intravenous injection of a 5 c.c. dose of active virus. The vaccinated animals withstood the virus without reaction, whilst the four control animals developed an acute attack of the disease.

W. R. W.

Milk from Diseased Cows.

Mr. G. B. Taylor, M.R.C.V.S., Veterinary Inspector for the County of West Lothian, in his annual report, states that during the year there were more notifications by dairymen under Section 14 of the Milk and Dairies (Scotland) Act regarding cows suffering from diseases liable to infect or contaminate the milk, but all such notifications were in respect of diseases of the udder.

"It is impossible to know," states Mr. Taylor, "to what extent this section is being complied with, and the problem of the disposal of milk from diseased cows presents a real difficulty in administration. In cases of mastitis, in which perhaps only one quarter of the udder is affected and the contents of that quarter are obviously unfit for human consumption, it may be taken for granted that no dairyman would contemplate any other course than to discard altogether, but in these cases the milk in the other quarters is often normal in appearance, and I fear that many dairymen do not yet realise that such milk is frequently infected, and only fit, after boiling, for pig, calf, or poultry feeding."

Views on Hodgkin's Disease.

Sheriffdom of Dumfries and Galloway at Kirkcudbright.

Peter Duncan and William Duncan, Farmers (Pursuers) *v.* The Southern District Committee of the County Council of Kirkcudbright (defenders). Case heard on November 7th and 8th, 1929, before the Sheriff Substitute.

The facts at issue were that the pursuers sold to Messrs. T. and W. Ballantyne, farmers, Auchenheath, four pedigree heifers at the price of £40 each. On September 24th, 1928, whilst the animals were being driven from the pursuers' farm to Kirkcudbright station, one of them slipped into a hollow at the side of the road and fell against the dyke bounding the road, thereby sustaining a superficial injury to the hock. The injured heifer was driven along with the others to the station, a distance of six miles. On the way, the wound was washed at a farm by the shepherd, and at the railway station was bathed with lysol and bandaged by Mr. Duncan; the beast was then entrained in a special compartment, arriving at Auchenheath on the following day. Immediately on its arrival, the purchaser sent for his veterinary surgeon (Mr. P. Meikle, M.R.C.V.S.) who treated the injury; nevertheless, the animal gradually became worse and on the advice of Mr. Meikle was slaughtered on October 8th, 1928. The *post-mortem* examination showed that the animal was affected with Hodgkin's disease which, it was suggested, was accelerated by blood poisoning resulting from the injury, combined with the fact that the heifer was about to calve.

The pursuers sued the defenders for the loss of the heifer, alleging that the animal put its foot into an artificial hole made by the servants of the defenders in the grass verge at the side of the road and fell against the bounding wall, injuring its hock. As a result, blood poisoning ensued and the animal had to be slaughtered.

The defenders pleaded that (1) they were not responsible for the hole into which the animal put its foot; (2) that the animal was not properly treated after it had received the injury; (3) that it was suffering from a disease, *viz.*, Hodgkin's disease, which had no connection with the injuries. Judgment was given for the defenders on the grounds that the hole into which the heifer slipped was a natural hollow, overgrown with grass, the existence of which was unknown to the defenders, and that they were not liable for the resulting accident.

Evidence was given on behalf of the plaintiffs by Mr. R. Meikle, M.R.C.V.S., and by Mr. W. Robb, F.R.C.V.S., and on behalf of the defendants by W. Harley, M.R.C.V.S., J. Lindsay, M.R.C.V.S., and J. Waddell, M.R.C.V.S., and by Dr. J. L. Brownlie, M.D., D.PH. A conflict of opinion arose as to whether the animal died from septicæmia as a result of the injury or from Hodgkin's disease.

Mr. Meikle stated that when he first saw the heifer, apart from the injury to the hock it appeared to be in perfectly good condition. He examined the injury, dressed it with lysol and bandaged it. Three days later, the wound was considerably worse and, on the fifth day, the heifer showed symptoms of septic infection as evidenced by rapid breathing and a high temperature; in consequence he advised slaughter. Mr. Meikle further stated that he examined the carcass—the offals had been removed and were not seen by him—and found a red condition of the carcass, enlarged glands and a swelling on the affected leg and part of the back. He was of the opinion that the animal had died from blood poisoning, but admitted that it might also have been suffering from Hodgkin's disease. Although he had never seen a case of this disease, he understood that it was generally of the nature of a wasting, malignant condition. The heifer in question showed no such symptoms, for, apart from the injury, it was in excellent condition. If, therefore, the animal was suffering from Hodgkin's disease, the affection must have been recently acquired.

Mr. Robb supported Mr. Meikle in considering that the clinical history of the case, *i.e.*, the acute rise in temperature, the loss of power and the offensive discharge from the wound were indicative of a septicæmic condition. This was not the history of a malignant, wasting disease such as one would have expected had the animal been suffering from Hodgkin's disease. He was of the opinion that had Hodgkin's disease been present in a fairly advanced stage, it was reasonable to assume that some external manifestations of the condition would have been seen by the buyer.

Mr. Harley, the veterinary inspector for Hamilton, said that he examined the carcass, and, from the enlargement of the glands, he diagnosed Hodgkin's disease. The glands throughout the body were swollen, but were firm and elastic, in contradistinction to the soft glands which are encountered in toxæmic conditions. He was of the opinion that the animal must have been affected for a considerable period; he also thought that blood-poisoning might accelerate the course of Hodgkin's disease. The glands in this case, however, showed no tendency to break down, and hence he considered it to be improbable that the animal was affected with a septicæmic condition.

Dr. Brownlie made an examination of certain of the glands and came to the conclusion that, without doubt, they were affected with Hodgkin's disease. Since he was unaware of the positions from which the glands were taken, he was unable to say with certainty whether the animal was affected with blood poisoning, although the sections which he examined showed no evidence of changes suggestive of this condition.

Mr. Lindsay was of the opinion that lymphadenoma was a chronic condition associated with wasting, but thought that the course of the disease could be accelerated, not only by a septicæmia, but also by other conditions such as pregnancy, and that the nearer the animal approached the parturition period, the more it would be accelerated.

Mr. Waddell also considered that Hodgkin's disease was a chronic condition associated with gradual emaciation. He agreed with Mr. Lindsay, that in an animal which was approaching calving and was affected with Hodgkin's disease, the course of the disease would probably be accelerated. On the evidence of Mr. Harley, he believed that the cause of the condition for which the animal had to be slaughtered was Hodgkin's disease and not a septicæmia.

Insurance of Veterinary Surgeons' Motor Cars.

Correspondence with the Accident Offices Association.

During the last two months considerable attention has been devoted by the Association, in Council and Committee, to the question of the removal of the anomalous position at present existing, in which veterinary surgeons whose motor cars are insured with tariff companies are not fully covered by the usual private policy against claims arising when a car is being driven for professional purposes by an Assistant, whereas medical practitioners are so covered.

Representations to the Central body of the tariff companies (Accident Offices Association) having been made without success, it has been decided to give full publication in the *Record* to the correspondence, which is as follows :—

The Secretary,
Accident Offices Association,
60 Watling Street, E.C.4.
March 19th, 1930.
Dear Sir,

Insurance of Motor Cars.

It has been brought to the notice of this Association, as a result of correspondence that has passed between a member and an insurance company, that veterinary surgeons are not fully covered by the usual private policy against claims arising when a car is being driven for professional purposes by an assistant.

As it is understood that medical practitioners are fully covered by a corresponding policy, this Association would strongly urge that the same concessions as are now made to medical practitioners should be granted to veterinary surgeons also.

This Association would greatly appreciate such action as would remove an anomaly to which serious exception is taken by many veterinary surgeons.

Yours faithfully,
F. Knight, *General Secretary.*
National Veterinary Medical Association,
2 Verulam Buildings,
Gray's Inn, W.C.1.

To the above letter, a reply, dated March 19th, 1930 (following a formal acknowledgment) was received from the Chairman and Secretary of the Accident Offices Association, stating :—

" With further reference to your letter of the 19th instant upon this subject, I beg to advise you that I have now had an opportunity of submitting it to my Committee.

" Your request was given careful consideration, and I was desired to inform you that it is regretted that we are unable to see our way to comply with your request, *viz.*, to provide, in the case of veterinary surgeons' cars, for the same privilege as is granted in the case of medical practitioners in regard to the use of the car by a partner, locum tenens and/or assistant."

A further letter (March 27th, 1930), in the following terms, was then addressed, by the Secretary, N.V.M.A., to the Accident Offices Association :—

" I laid your letter of March 27th before my Finance and General Purposes Committee at a meeting held on April 28th.

" The Committee was very disappointed to learn that your Motor Offices Committee is unable to comply with the request made in my letter of March 19th, and I was directed to point out to you that no such distinction as that mentioned by me is made by the non-tariff companies. The policies of these companies in their normal form permit the insured car to be driven for private and professional purposes by any authorised and licensed driver, such as a veterinary surgeon's assistant and/or locum tenens, without any restriction in the cover provided by the policies.

" In these circumstances my Committee hopes that on further consideration your Committee will see its way to provide that veterinary surgeons are fully covered by the usual private policy against claims arising when a car is being driven for professional purposes by an assistant and/or locum tenens, as is done in the case of medical practitioners. If, however, your Committee is still unable to grant the Association's request my Committee will feel it desirable to draw the attention of all members of the Association to your decision and at the same time to advise them to insure their cars with non-tariff offices."

To the above communication, the following reply (dated May 8th, 1930), was received :—

" With further reference to your letter of April 29th, I beg to inform you that it has now been placed before my Committee and your representations have been given once again its careful consideration.

" I am desired to advise you, however, that my Committee has come to the conclusion with regret that it is unable to accede to your request, and confirm the decision which has been already arrived at and conveyed to you."

The Association finally addressed the following letter to the Accident Offices Association :—

" I read your letter of May 8th to my Committee on Monday, May 26th, when, in view of its contents, the Committee decided to publish in the Association's weekly journal, for the information of veterinary surgeons, all the correspondence which has passed between this Association and your own on the above matter."

. . . . .

We desire it clearly to be understood that the decision as to inability to comply with the Association's request in the matter lies solely with the tariff companies. We understand that certain non-tariff companies already provide the cover which is desired.

The Effects of Iodine on Milch Cows.

The effect of the long-continued administration of iodine on the health of milch cows, and on the production and composition of milk, has been studied. No difference was observed in the health of cows receiving iodine and those fed under similar conditions but without iodine. Iodine had a favourable influence on the volume of milk produced, which was 4·53 per cent. greater from the cows receiving iodine. The favourable effect was most notable at the time of the decline in lactation, when the iodine-receiving cows produced 14·37 per cent. more milk than those fed without it. When cows were given daily rations containing 200, 400 and 600 mgm. of iodine in the form of potassium iodide, there was no effect on the condition of the body temperature. The periods of lactation were prolonged. The butter-fat content of the milk was unaffected, except that there was a slight decrease when the amount of iodine *per diem* reached 600 mgm. But since the total volume of the milk secreted was increased, the actual output of butter-fat per cow was also increased. The iodine content of the milk was increased fivefold above normal by the administration of 100 mgms. of iodine as potassium iodide *per diem*; and with increasing amounts of iodine fed, that occurring in the milk was more or less proportional. Butter obtained from this milk is practically free from iodine, even when large amounts to potassium iodide are given to the cows. Cheese made from the milk if iodine-fed cows contains about one-third the amount of iodine present in the original milk.—W. Schropp, K. Scharrer, and J. Schwarbold (*Biochem. Zeit.*, 1929, 213, 1, 18, 32; through *Chem. Abstr.*, 1930, 24, 402. Ex. *Pharmaceutical Journal.*)

From The Veterinarian,

May, 1830.

Miscellanea.

Horse Cause.

Tolner *v.* Rogers.

The Attorney-General (with whom were Mr. Archbold and Mr. Steer) stated the case for the plaintiff, and gave in evidence the following facts:—The plaintiff, an attorney, residing in the King's Road, Chelsea, had employed the defendant as his veterinary surgeon, and in the month of March in the last year, the latter was attending to a pony of the plaintiff's. On the 29th of that month the defendant, being at the plaintiff's house, suggested that the mare in question should be bled, telling the plaintiff that it was advisable to bleed horses in the spring and fall. The mare was nearly thoroughbred, and was at that time in high condition. The plaintiff, observing that she was in perfect health, objected to have her bled; but on going out of town on the following day, he left word with his groom, that, if the defendant should call in his absence, and should think it right to bleed the mare, he might do so. The defendant called on March 31st, and bled the mare, taking from her about six quarts. He desired the groom to put her on extra clothing, and to keep all the ventilators of the stables closed. The groom attended to these instructions, the mare being put into a three-stall stable, in which were two ponies and a horse. A few hours after the bleeding, the groom perceived a dullness in the mare, which continued during the next day, and she ate but little. The defendant sent a ball, which was given to her, but for two or three days successively she continued getting worse, there being a great heaving at the flank, with shortness of breath. On April 3rd, the defendant not having come in the meantime, the groom went to him, and requested his attendance. On his coming and looking at the mare, he said she had caught cold. He attended her regularly twice a day, with the exception of one day, from April 3rd to the 9th, and administered medicine. On the 9th, the plaintiff's groom (the plaintiff still being absent in the country), suggested the propriety of taking a little blood from her. The defendant said she was too weak to bear it, and expressed his opinion that she would not recover. The mare, at that time, was labouring under symptoms of inflammation; and the defendant asked the groom whether he had told his mistress that too much blood had been taken from her? The groom replied that he had. On the plaintiff's return home, Mr. Jumpson, a veterinary surgeon, of Judd Street, Chelsea, was sent for, on the night of April 9th, to meet the defendant, who, however, did not attend at the time appointed, but came about one o'clock in the morning, after Mr. Jumpson had bled the mare, and removed her into a detached box in the stables. The mare died on the morning of the 10th.

Two riding-masters, who had seen her a few days before the bleeding on March 31st, described her as a fine animal, in perfect health and spirits at that time. One of them said that such a mare would probably be worth about 100 guineas; the other thought she was worth 100 or 120 guineas.

Mr. Jumpson said, that, when he examined the mare on April 9th, he found her labouring under inflammation of the lungs, and that the stables where she was kept were very hot, and full of foul air for want of ventilation. The defendant, when he came at one o'clock in the morning, expressed his surprise at her being removed to a detached part of the stables, and told witness that as he had taken her under his care, he (the defendant) would have nothing more to do with her. She was opened after death, and witness was of opinion that the cause of her death was an over-congestion of blood in the lungs. The intestines were slightly inflamed from the excessive purging. There was inflammation also on the inner membrane of the windpipe. Witness was of opinion that for inflammation of the lungs purgative medicines were improper. He should wish to excite nausea, but not to purge.

Mr. Coleman concurred with Mr. Jumpson in opinion that the death had been caused by a congestion of blood in the lungs. Being asked his opinion as to bleeding horses in the spring and fall, he was for "letting well alone." He would not bleed unless there was some disease, or change of diet, or of temperature, to render it necessary. It was, however, a common practice to take blood in the spring, and sometimes in the autumn. Six quarts was not a very extraordinary quantity to take from a horse. In his opinion, all stables should be ventilated. The want of ventilation was the frequent cause of disease, and of this particular disease, which was one of the most sudden as well as the most fatal. The want of cleanliness, and a high temperature, were frequent causes of the disease, though over-exertion was a frequent and more violent cause. For such a disease he should wish to create nausea, and to lower the action of the heart, so as to prevent so much blood flowing into the lungs. Mild purgatives were proper for that purpose.

On his cross-examination, the witness stated that the inflammation of the lungs would sometimes exist without its being traceable to any particular cause. More horses died from inflammation of the lungs than from almost all the other diseases put together. He had long known the defendant, who had been regularly educated as a veterinary surgeon, and was a member of the College. Witness considered him an intelligent man, and skilful in his profession.

Mr. Campbell addressed the jury for the defendant, and said that the evidence of Mr. Coleman had put the plaintiff out of court. He contended that there had been no want of skill or attention on the part of the defendant, who, he said, would be ruined in his profession had the plaintiff been able to establish the case against him.

Lord Tenterden, in summing up the evidence, said, he thought that the death could hardly be attributed to the bleeding. The Jury would, however, consider whether there had been any want of care or skill in the defendant's mode of treatment of the animal, and particularly in ordering the stables to be kept closed and no air admitted. If they thought there had been such want of care or skill, they would find for the plaintiff; if not, for the defendant.

The Jury, after retiring for a short time, found for the defendant.

. . . . .

We congratulate Mr. Rogers on the result of this trial; he would have been unjust to himself as well as his professional brethren, had he compromised such an affair. He bleeds a mare because he thought that "it was advisable to bleed horses in the spring and fall," to obviate, probably, that subacute febrile action which is frequently observed during the moulting season. We acknowledge that we are not accustomed to do so, for we find that a little physic, or alterative medicine, with a few mashes, will much more readily remove the languor which occasionally hangs about the animal; and, where we can, we do as Mr. Coleman very judiciously recommended, "let well alone."

A few hours, however, after the bleeding, the mare was dull, and refused her food and heaved at the flanks, and, as the plaintiff affirmed, inflammation of the lungs came on, and she died: and then some groom or farrier (it could not have been one of a higher grade—Mr. Jumpson, in the report we have given, does not say so) persuades the owner that the bleeding was the cause of the inflammation—that the fire was kindled by taking away the fuel; and, Mr. Tolner—no horseman—believes this, and commences his action. Common sense, we should have thought, would have told him, that if the bleeding had any effect, it was to mitigate the intensity of the inflammation that followed.

Inflamed lungs supervened, and *then* Mr. Rogers ordered the mare, and the stable, in which were two other horses, to be kept close and warm. That the mare died from the consequence of inflammation, "over-congestion of blood

in the lungs," is probable. We have the united testimony of Mr. Coleman and Mr. Jumpson to prove it; but *when* did the inflammation commence? The plaintiff's adviser had not wit enough to attend to this important point. Most certainly not, when, after the bleeding, she was ordered to be kept warm. After inflammation, pure inflammation of the lungs had existed ten days, the lungs would have been *gangrenous*. *Congestion* is the consequence of recent inflammation rapidly running its course. It was not attempted to be proved, and what indeed could not have been proved, that inflammation of the lungs was the primary disease.

Suppose Mr. Rogers fancied something like catarrh coming on, would he do wrong in clothing warmly? or would he be always wrong in keeping the stable warm? Mr. Rogers intended to physic the mare: he did physic her. Mr. Jumpson speaks of the "excessive purging." Is it wrong practice to keep the stable warm while a horse is under physic, and especially when super-purgation occurs? Mr. Jumpson says that "the intestines were slightly inflamed." *Slight* inflammation does not usually follow "*excessive* purging." Was it not a complicated case from the beginning? and might not inflammation of the intestines succeed to catarrh or bronchitis, and inflammation of the lungs to that of the intestines? Mr. Rogers, then, might not be guilty of any mal-practice; or, at the worst, might not have been more mistaken in the opinion which he formed of the case, and the course which he pursued, than the most careful of us must occasionally be, when our patients can neither tell us the seat nor the degree of pain.

We are not advocating the cause of Mr. Rogers, who has not treated us quite well in this affair (he knows to what we refer), but we are considering how it bears on the interest of the profession generally. This is an action which should not have been brought; and Mr. Rogers deserves our thanks for defending it. We have enough to contend with from the degraded rank which we occupy in society, and from the disadvantages under which we labour from our neglected education, and from the character of our patients, who are dumb—dumb—without having our occasional errors of practice (and we are not sure that there was an error here) brought against us to the ruin of our reputation and our little fortune. Nothing but gross inattention to our patients, and blunders manifestly auguring want of skill, such as the nerve operation of the worthy recorded in the present number, are fair subjects of action. The most skilful human practitioner has enough to puzzle him, and to lead him astray at times. The practitioner on the dumb quadruped, and none of whose blunders are buried undetected, fares worse. The subject of professional responsibility, however, is one too interesting and too complicated to be thus summarily dismissed. We shall return to it shortly.

Regarding the statement of the Secretary of the Sunderland Association that meat hanging in a slaughterhouse is not "exposed for sale," Dr. Hebblethwaite, the Medical Officer of Health, points out that the legal view is that meat found diseased in a slaughterhouse, and not previously notified to the Health Office, is regarded as intended for sale. Further, meat found diseased in a butcher's shop is, by the very fact that it is in the shop, intended and exposed for sale. It was not for the inspector to prove that it is for sale, but for the butcher to prove that it is not intended for sale.

The total number of public and private slaughterhouses licensed by local authorities in Scotland is 703.

The King has agreed to become patron of the Highland Agricultural Society, and the Prince of Wales to become President.

Divisional Reports.

West of Scotland Division, N.V.M.A.*

Meeting at Glasgow.

A meeting of the West of Scotland Division was held in the Veterinary College, Glasgow, on May 21st, 1930. The President, Professor George W. Weir, occupied the chair.

In addition to the President, the following gentlemen signed the attendance roll:—Professor Wm. Robb, Major J. G. McGregor, Messrs. Jas. Andrew, David Brown, J. W. Burgess, Wm. Harley, Thos. Johnson, Wm. Burke McAleer, Jas. Macfarlane, Andrew H. Stark, Jas. F. Taylor, Alex. Thomson, Peter Wilson and D. Campbell (Secretary). A pleasing feature was the presence also of a number of students from the College.

The Secretary intimated that apologies for inability to attend had been received from Dr. Bradley, Professor Mitchell, Messrs. Abbott, Inglis, Lindsay, Meikle and Nairn.

The minutes of the previous meeting were read and adopted.

Nominations for membership of the Division were proposed by the President and seconded by Professor Robb as follows:—Messrs. Sidney G. Abbott (Paisley), John McFarlane (Doune), J. D. Pottie (Greenock), E. G. Robertson (Strathaven) and W. L. Weipers (Glasgow). These were accepted unanimously.

The President said it would be a matter of sincere regret to all that a family bereavement had that day deprived them of the presence of Professor Wm. M. Mitchell, of the Royal (Dick) Veterinary College, who had kindly promised to read them a paper on "Some Further Observations on Pathological Changes found in Horses affected with Shivering, and their Significance." Professor Mitchell had sent on his paper, and it would be read to the meeting by the Secretary, but in the circumstances it had been decided to postpone discussion of it to a later meeting, when they might have the advantage of the author's presence.

He (the President) was sure the Division would wish the Secretary to communicate to Professor Mitchell an expression of their deepest sympathy.

The President then referred to the illness of Dr. Whitehouse, and said that he himself would take an opportunity verbally to inform the doctor of the concern which was felt by the members at his state of health, and their wishes for his early recovery.

Branch Meeting Report.—The Secretary reported that, at the meeting of the Scottish Branch, N.V.M.A., held on May 3rd, it was decided to form an executive committee of the Branch, to which each constituent division would appoint one member. On the motion of Mr. Wilson, seconded by the President, Professor Robb was nominated as the Division's representative.

It was also intimated by the Secretary that in consideration of its steadily increasing activities the Branch had decided to ask that divisions should increase their annual contributions to three guineas.

*Received on May 31st.

A statement of particular interest concerning the Branch meeting was made by Major McGregor. He said that the matter of Scottish representation on the Council, R.C.V.S., had recently been exercising the minds of many members of the profession in Scotland. The cost attending membership of the Council was great, and it bore heavily on Scottish members in particular. The Branch had decided, therefore, to institute a special fund, in order to meet in part the cost of Scottish representation. Members of the profession in Scotland were invited each to contribute ten shillings a year for this purpose. For the first year he (Major McGregor) had undertaken the task of collecting subscriptions, and in subsequent years it was intended that payments should be made to divisional secretaries for transmission to the Branch Secretary.

Professor Mitchell's paper was then read by the Secretary. [This paper is reproduced at the commencement of this issue of the *Record*.—Ed.]

Bovine Tuberculosis Eradication Scheme.—After the reading of the paper, Major McGregor gave an account of the Scheme for the Eradication of Bovine Tuberculosis, first devised by the Division, and subsequently adopted and amplified by the Scottish Branch. His hearers would be aware, he said, that the National Farmers' Union of Scotland had accepted the scheme in principle, as a practical solution of the tuberculosis problem. Representatives of the Branch had met representatives of the Farmers' Union in order to discuss details, and he was glad to say that it had been found possible to meet the suggestions made by the farmers' representatives without in any way interfering with the essentials of the scheme; in fact, the recommendations would have the effect of strengthening and tightening its structure. The N.F.U., in addition, were willing to join with the Branch in pressing the scheme on the notice of the authorities.

Major McGregor's statement was received with great satisfaction.

A vote of thanks to the Chairman concluded the proceedings.

Donald Campbell, *Hon. Secretary.*

Royal (Dick) Veterinary College Alumnus Association.

Former students of the Royal (Dick) Veterinary College will be interested to hear that, as the result of the meeting held in Edinburgh a month ago, it was unanimously agreed to form an Alumnus Association. The object of this association is to keep the Alumni in touch with the developments and activities of the College, and to keep their relationship with the College an active and ever-present one. A college must include graduates as well as undergraduates and teachers within its purview, and it is believed that a powerful and organised body of Alumni will be able to inaugurate various movements of mutual advantage both to themselves and to the College.

Accordingly, it was agreed that membership should be open to any former student or teacher of the Royal (Dick) Veterinary College and that Final Year students should be admitted to Associate Membership. In order that finance should be no obstacle to membership, the annual subscription has been fixed at the purely nominal one of half-a-crown.

In order to keep the activities of the College continually before the notice of the Alumni, it is proposed to provide each member with copies of the College magazine and (or) such other periodical publications as are necessary. To assist in keeping personal contact between students, teachers, and graduates, it is proposed to hold at least one annual meeting of a social character, either during the National Veterinary Medical Association Meeting or at some other convenient time. Accordingly, the first Annual Social Meeting will be held in London during the first week in August and will probably take the form of a Breakfast, in order to avoid clashing with the meetings of the International Veterinary Congress. Full details of this will be announced later.

Dr. O. Charnock Bradley has been appointed President of the Association; Sir John M'Fadyean, Professor Linton, and Major McGregor, Vice-presidents; and Professor W. M. Mitchell, Royal (Dick) Veterinary College, Treasurer. An influential and representative Committee, from all parts of the world, is in process of formation.

Thomas W. M. Cameron, *Hon. Secretary.*

The Department of Zoology,
The University, Edinburgh.

R.C.V.S. Obituary.

Robins, Joseph R., Winton Lodge, Chapel Road, Worthing. Graduated Glasgow, May 22nd, 1893; died June 16th, 1930, age 62 years.

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Hartley, Charles, 43 Friars Lane, Lincoln. Graduated London, March 16th, 1907, Fellowship, January 31st, 1914; died June 7th, 1930.

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The late Charles Hartley, F.R.C.V.S., T.D.

An Appreciation.

Charles Hartley died on June 7th. As Major R.A.V.C. (T.F.) he had passed a week of camp on Salisbury Plain with, as he wrote home, the utmost enjoyment. On the Friday evening, when standing in the sick-lines, he turned to a horse which had been bitten by its neighbour and received the full force of the retaliator's kick in his abdomen. Skilful medical and surgical attention, also the transfusion of the blood of a devoted friend from his own brigade, failed to arrest the inevitable result of a severely-ruptured liver.

The news of this dreadful tragedy will have brought sorrow to a very wide circle of friends in our profession, who may not feel ungrateful for a few words of appreciation of Charles Hartley from one who was privileged to own his friendship.

"Whatsoever of Strength the man had in him will lie written in the Work he does" (Carlyle). Charles had little opportunity of writing of his work—speaking of it in professional assemblies demanded too great a struggle with his nervousness. He once told me that he could never dismiss from his mind the anguish suffered when reading his first paper before the Lincolnshire V.M.A. But, as with many a colleague in general practice, his work is hidden in the memories of a countryside, whose respect and confidence is the greatest measure we have of Charles Hartley's strength.

Those people of Lincoln and surrounding country have been profoundly moved by the knowledge that the animal Charles loved and understood so well should have been the cause of his death. They will remember him, in the company of his father, as a sturdy, nimble boy astride his pony or driving a big-framed high-stepping grey. They will agree that whether with Blankney and Burton hunts or, later in life, as Veterinary Officer to the county yeomanry, he sat his horse with ease and grace, upholding worthily the distinguished position in local hunting and military circles to which his father had attained.

Upon such an upbringing it followed that his career at the Royal Veterinary College, from which he graduated M.R.C.V.S. in March, 1907, was a development of his native inclination. After three years' post-graduate experience with Mr. Caulton Reeks, F.R.C.V.S., and Mr. J. S. Lloyd, F.R.C.V.S., D.V.S.M., Charles joined his father in a large and high-class practice, in the work of which he displayed such an energy, cheerfulness and knowledge as rapidly won for Hartleys' an unrivalled position in the county. Such leisure as came his way was largely occupied in reading and collecting material upon bovine mastitis for the fellowship thesis. I well remember Charles returning home with his F.R.C.V.S. as one of the very few occasions on which I witnessed his immaculately-dressed father giving free vent to his emotions—in his pride he actually threw his new hat in the air and forgot to retrieve it. I picked it up and, before deeming it appropriate to hand it back, brushed off the dust.

Charles had married and settled in 43 Friar's Lane. Then came August 4th, and hurried packing up to join his regiment. After his father's death, July 30th, 1915, the practice brought many worries to Charles, now in France, owing to the shortage of qualified assistance. Thus on demobilisation he returned to the uphill task, familiar to many such as he, of rebuilding a practice of which the foundations had been permanently altered by the economic redistribution occasioned by war. But in his rapid recovery, his clients, old and new, saw manifest the character of Charles Hartley, which, unless I gravely misinterpret the people of my own county, they would agree was based upon patience, self-control and cheerfulness.

While Charles never appeared to conquer a nervousness which militated against his freely contributing the wealth of his own experience to professional meetings, yet at home or when driving his car he was a most interesting and interested conversationalist. Many will recall the little jerk of the head with which his words were uttered and the deliberation with which they were chosen—I do believe I have smoked a pipe through before Charles has reached his peroration, but I've refilled it, since his conclusion was worth waiting for.

Much of his post-war leisure he gave to Freemasonry. The high offices to which attained in the Craft are a tribute to his character, and the life he lived was equally a tribute to the tenets of the brotherhood. For he not only recognised the principle of freemasonry but he made it his standard of conduct—" Do unto others as ye would they should do unto you." This the people of Lincoln will remember as the strength of Charles Hartley.

He has left a widow, a son, two daughters and a mother to mourn his departure, and we respectfully ask leave to offer them our heartfelt sympathy.

TOM HARE.

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" The loss occasioned by the death of Major Hartley will be felt not only in Lincoln but throughout the county," says *The Lincolnshire Chronicle*. "As a veterinary surgeon he was highly skilled, and his services were not only in demand in the county, but in all parts of the country, while his personality secured for him many friends wherever he went. There was nothing selfish about him; in fact, he was ever ready to give a helping hand where he was able to do so, and his advice was always valued. For some years he had been an active Freemason and was a Past Master of St. Hugh Lodge, Lincoln. He was also a Past Deacon Provincial Grand Lodge, a Principal of the Royal Arch Chapter, a Brother of the Sancta Maria Chapter of Rose Croix Masons No. 167, and a Brother of the Remigus Lodge of Mark Master Masons."

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" I wish to express, on behalf of my fellow officers and myself, our very deep sympathy with his relatives. I do not think it too much to say that every officer and every man in the regiment not only respected him, they loved him. He was absolutely a first-class veterinary officer, and a great loss to the regiment."

This tribute was paid by Capt. Osbert Peake, a squadron commander of the Sherwood Rangers, at the inquest on Major Hartley on Saturday, at which a verdict of accidental death was returned.

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There was every manifestation of sympathy and regret among the citizens by the large crowds which assembled to pay their last tribute to Major Hartley at the funeral, which was accorded military honours. Thousands of people lined the route from Friar's Lane to All Saints' Church, Lincoln, where the funeral service was held. Some time before the arrival of the cortege, practically every available seat was occupied, and many were compelled to remain standing during the proceedings.

The coffin was draped in the Union Jack, on which were laid Major Hartley's cap, sword and medals, together with a cross of red roses from the widow. It was borne on a gun carriage, drawn by six horses, in charge of members of the 237th Battery, R.F.A. (T.A.). The six bearers were sergeants from the Sherwood Rangers. Immediately preceding the coffin was a firing party of men from the Sherwood Rangers, while two open carriages containing the numerous floral tributes headed the cortege. A number of officers walked immediately behind the coffin and formed a guard of honour at the entrance to the Church.

The Mayor of Lincoln (Alderman T. Nowell) was present at the ceremony, as were the following members of the Veterinary Profession: Mr. T. L. May (Mr. Hartley's Assistant), Professor Tom Hare (Royal Veterinary College), Mr. G. Lockwood, with whom was Mrs. Lockwood (Peterborough), Mr. E. Porter Smith (Lincoln), Mr. J. H. S. McKie (Spilsby), Mr. J. W. Beaumont (Louth) and Major F. B. Gresham, R.A.V.C.

Amongst the floral tributes were wreaths from the members of the Lincolnshire and District Division, N.V.M.A., of which Society Major Hartley was a valued member; from Major-General Anthony, C.B., C.M.G., Director-General, Army Veterinary Services and Officers R.A.V.C., and from a very large number of Major Hartley's friends in the profession.

In Parliament.

In the House of Commons recently the following questions and answers have been recorded:—

Colonial Office.

Captain PETER MACDONALD asked the Under-Secretary of State for the Colonies whether it is proposed to take any action upon the recommendations contained in the report of the committee on the system of appointment in the Colonial Office and the Colonial services?

The Under-Secretary of State for the Colonies (Dr. DRUMMOND SHIELS): The recommendations contained in this report are important and far-reaching. They will require careful consideration, and in many cases consultation with the Colonial Governments. In so far, however, as they affect the organisation of the Colonial Office, my noble friend the Secretary of State has accepted generally the Committee's recommendations, and proposes to give effect to them in due course as circumstances permit.

Milk Production.

Mr. GOULD asked the Minister of Agriculture if he can give any estimate of the production of milk in this country for 1930, and the figures for 1928 and 1929?

Dr. ADDISON: An annual estimate of the total milk production (excluding milk fed to stock) in England and Wales is made on the basis of the yield per head of the dairy herd as ascertained in the Census year June, 1924-May, 1925. On this basis the total production for the period June, 1926-May, 1927, was 1,152,000,000 gallons; for 1927-28, 1,147,000,000 gallons, and for 1928-29, 1,131,000,000 gallons.

Exportation of Horses Bill.

On Tuesday last Mr. MACDONALD informed Mr. WINTERTON that, in view of the state of Parliamentary business, he could hold out no prospect of time being found for the Exportation of Horses Bill.

Notes and News.

The Editor will be glad to receive items of professional interest for inclusion in these columns.

Diary of Events.

June 23rd.—Meeting of the Editorial Committee, N.V.M.A., at 2 Verulam Buildings, Gray's Inn, W.C.1, 4.30 p.m.
June 25th.—Meeting of the West of Scotland Division, N.V.M.A., at Glasgow.
June 25th.—Meeting of the Western Counties Division, N.V.M.A., at Torquay.
June 26th.—Meeting of the Dumfries and Galloway Division, N.V.M.A., at Kirkcudbright.
June 28th.—Meeting of the Scottish Metropolitan Division, N.V.M.A., at Blairgowrie.
July 1st.—N.V.M.A. Quarterly Meetings.
July 2nd.—R.C.V.S. Quarterly Meetings.
July 3rd.—R.C.V.S. Quarterly Meetings.
July 4th.—R.C.V.S. Quarterly Meetings.
July 7th.—R.C.V.S. Membership Examination commences.
July 18th.—Meeting of the Mid-West and South Wales Division, N.V.M.A., at Bridgwater.
July 24th.—Meeting of the Eastern Counties Division, N.V.M.A., at Cambridge.

AUGUST 4th to 9th.—11th INTERNATIONAL VETERINARY CONGRESS, CENTRAL HALL, WESTMINSTER.

Personal.

Illness of Dr. A. W. Whitehouse.—His many friends in the profession will be greatly concerned to learn that Dr. A. W. Whitehouse, Principal of the Glasgow Veterinary College, has been seriously indisposed for some time, his illness having its origin in an attack of laryngitis. Recent advices, we are glad to say, assure us that Dr. Whitehouse is progressing, although very slowly. On behalf of our readers we extend our sympathy to Dr. and Mrs. Whitehouse, and desire to express the sincere hope that his return to health will be accelerated.

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Appointments.—W. S. Gordon, Esq., M.R.C.V.S., of the Wellcome Research Laboratories, Beckenham, has been appointed as Bacteriologist, Moredun Institute, Animal Diseases Research Association.

Harold Burrow, Esq., M.R.C.V.S., L.V.S.M., Assistant Veterinary Inspector, City of Birmingham Veterinary Department, has been appointed as Veterinary Inspector to the County Borough of Birkenhead.

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Mrs. Trevor Spencer's Show Success.—At the annual show of the Northants Agricultural Society, held at Kettering on the 12th inst., the first prize for ladies' hunters was won by Mr. Victor Emanuel's brown gelding, Roulette, ridden by Mrs. Trevor Spencer, who had the honour of receiving the ribbon from H.R.H. the Duke of York, President of the Society for 1930.

Army Veterinary Service.

Appointment.

Army in India Reserve of Officers. To be Major, Veterinary: William Henry Priston. Dated November 9th, 1929, with seniority from April 13th, 1924.

London Gazette—War Office—Territorial Army Reserve of Officers.

June 13th.—Major C. R. Chadwick, having attained the age limit, relinquishes his commission and retains his rank (June 14th).

Regular Army Reserve of Officers.

June 17th.—Major R. A. Plunket, having attained the age limit of liability to recall, ceases to belong to the Reserve of Officers (June 6th).

Correspondence.

Letters to the Editor should reach the Office not later than by the first post on Tuesday morning for insertion in following Saturday's issue.

All correspondence must bear the name and address of the contributor for publication.

The Editor does not hold himself responsible for the opinions of his correspondents.

Eleventh International Veterinary Congress, London.

To the Editor of The Veterinary Record.

Sir,—I am sure the Organising Committee will be grateful to you for your editorial on the forthcoming Eleventh International Veterinary Congress.

I should like to emphasise the importance of a large membership from the British Islands. It would, indeed, be inexcusable, as you say, if the membership from this country were not overwhelmingly superior to that from other countries. It is a fair challenge, and I should like to be able to report for each of the next six weeks a hundred new members. The time is getting short, and there will have to be a big increase in the flow of applications if we are to secure superiority in numbers.

This is a unique occasion. There will probably never be another International Veterinary Congress in the lives of the majority of living members. From the point of view of entertainment, far more is offered than could be paid for by the amount of the subscription, while, as you rightly point out, the volumes of the proceedings will be in themselves a small library of treatises on the most important problems in veterinary science. But apart from all this, there is the inestimable value of intercourse with colleagues from overseas which brings with it a widening of outlook and often a refreshingly new point of view. For these selfish reasons alone any veterinarian who does not become a member of the Congress will certainly be the loser, but I may be permitted to express the hope that the larger view will prevail with most, and that for the sake of the prestige of the profession in this country there will be a record entry. If members have lost or mislaid the particulars I shall be happy to forward all information on request.

Yours faithfully,
Fred Bullock,
General Secretary.

10 Red Lion Square,
London, W.C.1.
June 16th, 1930.

Milk Fever.

To the Editor of the Veterinary Record.

Sir,—Following on my recent communication regarding those cases of milk fever which, for some reason at present inexplicable, fail to respond to treatment, I have received a number of interesting letters from practitioners, and, as I anticipated, I am not unique in encountering such cases. Amongst the communications was an extremely interesting one from Captain L. C. Macguire, F.R.C.V.S., and in the course of his communication he stated that if a *post-mortem* was made on such cases, I should probably find in nearly every case the liver substance greatly altered, and appearing to be in a condition of acute fatty degeneration. Since then the opportunity, unfortunately from my point of view, has arisen of making such a *post-mortem* on two

cows that have died from milk fever in spite of all treatment, and I have been able to demonstrate this condition in both of them. Of the blood samples taken and examined each case has been confirmed as that of milk fever—that is, of course, assuming that there is always a calcium deficiency in cases of milk fever. In the last case the cow, a Jersey, had an attack last year, and was under treatment for five days. She had another attack this week, which has proved fatal, but the most remarkable thing noticed was, that after inflation with oxygen she went out stiff like an animal suffering from strychnine poisoning, and remained so for quite a long time. The temperature throughout never varied from 100° F.

I have seen it stated that mammary inflation with oxygen or air causes recovery in 100 per cent. of cases. This is undoubtedly erroneous, and the figure should be modified to 90 per cent. This is a generous figure to allot to any treatment, and anything over that figure is in the nature of a romantic one.

Presuming that there is always a calcium deficiency in cases of milk fever, the investigators still have a lot of research work to carry out to explain why 10 per cent. fail to recover even when there is a distinct rise in the calcium content following treatment.

I wish to thank Dr. Russell Greig for his kindness in examining numerous blood samples.

Yours faithfully,
J. F. D. Tutt, M.R.C.V.S.

1 St. Cross Road, Winchester.
June 13th, 1930.

"The One-humped Camel in Health and Disease."

To the Editor of the Veterinary Record.

Sir,—When I published "The One-humped Camel in Health and Disease" I expected to lose £100 on it, because the subject dealt with in the book is one that interests a very limited and scattered "public." However, I find that I am now only £22 down on the venture, thanks very largely to the orders received from the Government of India.

The price of the book is 16s. May I use your columns to say that any orders received direct from Members of the R.C.V.S. from this date forward will be executed at the reduced price of 12s., with postage 6d.?

As I have been my own publisher, advertiser and distributor, I have found out one or two things which might be useful to any veterinary surgeon who is desirous of undertaking the unprofitable job of writing a book on professional subjects.

Yours faithfully,
A. S. Leese.

White House, Pewley Hill, Guildford.

Homœopathic Treatment of Animals.

To the Editor of the Veterinary Record.

Sir,—Some time ago there appeared in the *Homœopathic World* a plea for Homœopathic Scholarships for veterinary surgeons. In the current issue for June, the leading article is headed "The Animals' Turn." In the course of its remarks, two or three letters are quoted recording successful cures of animals—a dog and two horses. Under "Correspondence" other instances are given.

To the above I can add the case of a large Khaki Campbell duck. I had returned home one day to find that one of a flock of five had gone lame. My husband, to prevent matters perhaps going from bad to worse, had put her into a hen coop. To make a virtue of necessity the duck seemed to be feigning broodiness!

I examined the leg and found a swelling, but could not decide whether this was due to rheumatism or a strain. So far as prescribing went, there was no need to trouble over my incapacity to diagnose the troubles exactly, as I had "Rhustox" liniment to hand, which is homœopathic to both conditions. The need for knowing more accurately which it was, came when I had to decide whether to let her take exercise or remain cooped up. I decided to treat it as rheumatism and let her run with the rest, each day after her morning massage. This, by the way, she seemed to enjoy, holding her head and neck horizontally to the shoulders with an almost dove-like calm in her eyes. About the third day she even allowed a free working to and fro of the leg. I think it was the fourth day that I left home for a night, and returning the next evening I could only just detect a difference from the rest in her gait. One or two mornings more treatment and it was impossible to see which duck had been lame. Had I thought, I might have dosed her also with "Rhustox" in medicinal form.

At the Veterinary Colleges I believe little or no teaching is given as regards birds, and there is a theory amongst certain small-holders that a hen, if sick, is best killed, even if a valuable bird, because "she will never be of any real use again." This seems to me a fallacious attitude towards any sick creature. It is a veiled way of saying that no cure for such exists, for a hen, or duck, that was "cured" and of "less use from that time," would not in any true sense be cured at all. I remember the late Dr. Barton (an allopath) saying as regards human patients, "the word incurable must go," and certainly the founder of the Homœopathic School of Medicine regarded the word "incurable" as merely marking the measure of our own ignorance. The instances given in the *Homœopathic World* suggest that extermination of animals can be recommended too soon, at least where homœopathic remedies are available.

Yours sincerely,
Rosa Hobhouse.

"Failand," Broxbourne, Herts.
June 11th, 1930.

P.S.—The plea for veterinary surgeon scholarships referred to above appeared in the issue of November, 1929. It contains the statement: "I have always found the veterinary profession very broad-minded, but at present it is very difficult for them to learn by practising it, the wonderful curative power of Homœopathy." I herewith enclose: "Homœopathic Guide to the Treatment of Dog Diseases," recently published by Epps and Thatcher, of 60 Jermyn Street, S.W.

R.C.V.S. Council Election.

To the Editor of the Veterinary Record

Sir,—We desire to thank all members of the profession who recently supported our election to the Council of the Royal College of Veterinary Surgeons. We are proud of the honour conferred on us, and shall strive to maintain the traditions of the office.

Yours faithfully,
William Nairn, Blairgowrie.
A. Spruell, senr., Dundee.

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To the Editor of the Veterinary Record.

Sir,—Will you kindly allow me space in the columns of your valuable journal to offer my sincere thanks to all the members of the profession who so generously supported my re-election to the Council of the R.C.V.S.

I shall endeavour to merit their confidence by a regular attendance to the duties of the office in the future as in the past.

Yours faithfully,
Richard Hughes.

Rhianva, Oswestry.
June 17th, 1930.

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To the Editor of The Veterinary Record.

Sir,—I would like, through the medium of your columns, to express my thanks to those members of the Profession who gave me their votes at the recent election to the Council of the Royal College of Veterinary Surgeons, and to assure them that I shall always do my best to justify that support.

Yours faithfully,
D. S. Rabagliati.

County Hall, Wakefield.
June 14th, 1930.